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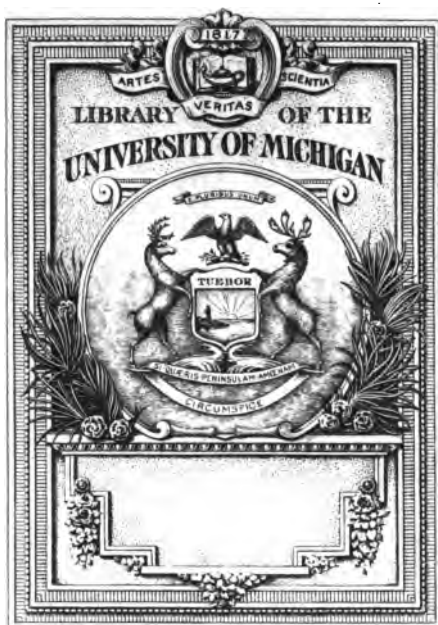
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ANNUAL REPORT
COMMISSION ON WATERWAYS AND
PUBLIC LANDS
1917





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SECOND ANNUAL REPORT

OF THE

Massachusetts

COMMISSION ON WATERWAYS AND
PUBLIC LANDS.

FOR THE YEAR 1917.

JOHN N. COLE, *Chairman,*
JESSE B. BAXTER,
WILLIAM S. McNARY,
Commissioners.



BOSTON:
WRIGHT & POTTER PRINTING CO., STATE PRINTERS,
32 DERNE STREET.
1918.

**PUBLICATION OF THIS DOCUMENT
APPROVED BY THE
SUPERVISOR OF ADMINISTRATION.**

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The Commonwealth of Massachusetts.

REPORT.

To the Honorable the Senate and House of Representatives of the Commonwealth of Massachusetts.

The Commission on Waterways and Public Lands respectfully submits the annual report covering its activities for the year ending Nov. 30, 1917. The personnel of the Commission has remained unchanged: John N. Cole, chairman, Jesse B. Baxter and William S. McNary, Mr. McNary having been reappointed in June, 1917, for a term of three years from the expiration of his original appointment.

While certain projects under the direction of the Commission have been carried on with little interruption, much of the new work justified under normal conditions was deferred until a more opportune time, on account of the high costs and difficulties associated with carrying out contract work. The department has recognized that only such necessary expenditures as have been demanded by the actual needs of the times justified the excessive prices made necessary by market conditions for supplies and labor, and has, because of this situation, deferred until a more opportune time some of the important undertakings contemplated in the original program for river and harbor improvement. Wherever business conditions demanded it, however, work has been undertaken with resultant improvements in a number of sections of the State, and in and about Boston Harbor, that have made the year one of progress for waterway development in Massachusetts.

The reorganization of the department was completed in July, 1917, and it is believed that the force now offers an

adequate and well-balanced organization for the conduct of all the administrative features associated with the work entrusted to the Commission. With conditions right for extended activities much needed along many lines, as set forth in the report of the Commission, it is probable that some additions will be necessary to the administrative department; but in a desire to hold the cost of government, in so far as the Commission has any responsibility for the same, at as low a point as possible, the present force will be sufficient until a more extended program of work is undertaken.

Comparative Department Figures.

Cost of maintenance for both departments for year previous to consolidation,	\$229,839 36
Cost of maintenance for 1917,	130,642 99
Total earnings for both departments for 1916,	148,050 33
Total department earnings for 1917,	234,253 73
Total cost of work carried on in 1916,	1,073,687 55
Total cost of work carried on in 1917,	1,167,082 18

It has been found necessary to extend the time for completing several contracts made by the Commission during the year on account of the inability of contractors to secure either satisfactory labor or abundant supplies. Shortage of coal and the high cost of the same have been almost ever-present disturbing factors with all the contracts in which the Commission has been concerned, and this significant feature should not be lost sight of in the discussion of the larger problems with which the Commission is connected, involving a relief for transportation for New England, with special reference to a supply of coal and other necessities.

While the policy which the Commission has followed in holding its expenditures to only those improvements actually needed has resulted in leaving a larger balance than usual of the amount appropriated for river and harbor improvement, it should not be forgotten that the requests having merit, considered by the Commissioners during the year, involved an expenditure many times this balance. With the return of conditions more nearly normal, this money must be allotted for the most pressing of these demands, and if Massachusetts

is to do its share in connection with the increasing need on the part of communities for river and harbor improvement, even larger appropriations must be made when the question of annual expenditure comes up for consideration in 1919.

CONSERVATION OF WATERWAYS.

One of the most important matters coming before the Commission for consideration has been a continuance of the work of investigating inland waterways under the provisions of chapter 113 of the Resolves of 1915. The requirements of that resolve call for a report to be submitted to the Legislature. While the report will deal exhaustively with the subject from the standpoint of available water supplies and possible developments, it will call for still further investigation as a basis for constructive work in connection with this most important matter.

SURVEYS FOR INLAND WATERWAYS.

The detailed report of the engineers covering this work in connection with the three important possible developments of inland waterways in Massachusetts will be found elsewhere.

The Commission desires to urgently impress upon the attention of the Legislature continued interest and study of the possibilities for service for different sections of the State contained in a proper development of the Connecticut, Merrimack and Taunton rivers. Already surveys and reports are available in connection with all three of these projects, clearly showing possibilities, needs and advantages to follow proper development. That one or more of the projects has not already been started is undoubtedly due to the excessive demands upon the taxpayers of the Commonwealth in connection with present war conditions. It is true, however, that in all three of these projects there is involved the need of still further study and a better understanding of the many attendant incidental costs, which up to the present time have not been as fully worked out as has been the actual cost of widening, deepening and improving the channels themselves. This situation is particularly true in regard to the Merrimack River, and in order that a better understanding may be had of the

costs involved in railroad connections and terminal facilities by those who are most directly concerned, so that after the channel is completed actual service may come to the people directly interested, further studies are now being made by this Commission.

While most of the local communities interested in such projects as the development of these inland waterways look upon the improvements as local issues, the real need is that they should be approached from the standpoint of service, not only to the local community, or even the Commonwealth itself, but to the broad national needs; and this viewpoint was never so important as at the present time.

NEW BEDFORD STATE PIER.

The new pier constructed by the Commonwealth at New Bedford was hardly completed before its use began. While it will be necessary to have a longer period in which to determine the actual returns which the Commonwealth is to receive on this investment, there is abundant evidence already that the pier will be of great service to the industrial life, not only of New Bedford but of the entire Commonwealth.

BOSTON HARBOR AND MINOR CHANNELS.

The larger expenditures under the control of the Commission have naturally been associated with work in Boston Harbor and adjacent connecting waterways. As the chief port of New England, and one of the leading ports of the country, Boston demands larger expenditures and more constant attention to keep it in its commanding position than do other sections of the State. Some of the more important improvements associated with the development of Boston Harbor are naturally not required in other localities, but the demand upon the Commission with regard to other sections of the State, even though Boston may require the larger expenditure, is emphasized every time comparisons are made between the development of other harbors and the development of Boston Harbor. It is doubtful if the viewpoint of the people of Massachusetts is wisely focused upon Boston Harbor as the

only port to which important shipping should come for service for all the people of the Commonwealth. The Commission calls attention in another paragraph to the wisdom of developing some of the other important harbors of the State, with particular reference to service in raw materials for manufactories and public necessities. There is not the least question but that shipping in Boston Harbor might very properly be relieved, and the service for the people in connection with the handling of coal, lumber, oil and other vital necessities be much improved, if much of this sort of material now sent via Boston, to the advantage of some particular railroad system, were shipped via New Bedford, via Fall River, via Salem, via Newburyport or via Plymouth, to the advantage of the consumers themselves. Such a development of these other harbors would not in the least interfere with the growth of the chief harbor itself and its continued improvement for overseas service, as well as the handling of these products for the immediate heavy local needs in metropolitan Boston.

Dry Dock.

Shortage of labor and difficulty in securing materials have had their influence upon the progress of the work on the dry dock during the past year. War demands have attracted much of the labor that might ordinarily be relied upon for this sort of work in Boston, and progress has necessarily been slow. The actual progress of the work is covered in the detailed report presented elsewhere. From present appearances it is doubtful if the dock will be completed during the coming year, although the contractor believes that vessels may be docked by Jan. 1, 1919.

During the year the definite agreement with the Federal government for the use of the dock has been formally signed, and practically all the contracts for which money is available have been awarded. The failure to award several contracts for work necessary to the operation of the dock now makes a demand upon the Commission for much higher prices and a larger outlay of money than would have been involved if the contracts had been awarded at the time when the original contract was made. To complete the work and provide all

the equipment necessary for operation it will be necessary to provide further funds to the amount of \$778,341.69. To provide for railroad tracks necessary for proper railroad connection, and for the construction of a proper teaming street to be known as Dry Dock Avenue, the further sum of \$87,900 will be required. It will be necessary that this money should be made available during the present session of the Legislature if the dock is to be equipped for operation and the immense sum of money already appropriated for it made of any use to the community.

A pressing matter in connection with the dock has to do with its operation after completion, and the Commission is at present considering leasing the dock to private parties for operation, both because of the advantage this operation would bring to the shipping interests through the better facilities offered, and because of the advantage that would come to the Commonwealth in a greater return on money invested than would likely be secured if operated by the Commonwealth.

East Boston Land.

Undoubtedly one of the most important developments that the Commonwealth has in hand is that connected with the reclamation of East Boston flats, the filling of the area, and handling of the dredged material in doing this work. Contracts entered into by the Directors of the Port of Boston began this work in 1916. During the year 1917, because of the establishment of the pumping plant already engaged in completing the original contract, and the large amount of dredged material available for the filling, the Commission considered it wise to make a further contract for reclaiming these flats. The entire taking involved in this type of improvement covers approximately 164 acres.

Through a change in the policy of dumping dredged material at sea, with all its attendant abuses including additional cost, to the dumping of this material into the receiving basin at Jeffries Point, and rehandling it upon this area, there has been handled during the past year 2,058,888 cubic yards, which, added to the small amount deposited previous to 1917, has

resulted in reclaiming up to the present time nearly 50 acres of solid land. This work must keep on, for it not only means economy in handling dredging projects in and about Boston Harbor, but it guarantees an immensely valuable land area in this important section of metropolitan Boston, capable of commercial and business development of great importance.

The next step in the development of the property contemplates connection with railroad facilities. Under an agreement with the Boston & Albany Railroad the Commission believes that it is possible to make this connection without any serious injury to existing tracks of other railroads in this vicinity. If for any reason it is not possible to make such connection, the Commission desires legislation that shall provide for the construction of suitable track connections between any railroad now doing business in Boston and the tracks of the Commonwealth to be located upon this East Boston area. Immediate consideration should be given to this matter, because there is already pending before the Commission a project to take a large acreage in this section for early business improvement.

To make the necessary rail connections, build new streets and carry on the further work of filling and developing, \$500,000 should be provided.

The work already done in this section under the direction of this Commission and its predecessors has involved the expenditure of approximately \$600,000.

Boston Harbor Improvement.

All the necessary minor work incident to caring for various channels in and about Boston Harbor has been carried on throughout the year, the only important project having special consideration being that in connection with the dredging of Chelsea Creek. Development in this section by an important oil concern, which desired to co-operate with the State in dredging the channel, led to an allotment by the Commission of \$60,000 for special work in Chelsea Creek, to be added to a like amount to be expended by the corporation. Details of this improvement are given elsewhere in this report.

Hayward's Creek.

The action of the Commission in giving early consideration to the taking of land at Hayward's Creek has been proven wise by later conditions associated with development in that vicinity. Not only the original area requested by the Fore River Shipbuilding Corporation for development of its work in connection with government needs has been used, but much more of the area taken by the Commonwealth has been devoted to uses absolutely necessary to the service which the Fore River Shipbuilding Corporation is rendering to the government in the present war emergency. In the section taken by the Commonwealth, located across the creek in Braintree, there is available a large area not used at the present time, but capable of improvement of very great importance to the industrial life of southeastern Massachusetts. The Commission is considering plans for the use of a portion of this area as storage yards for coal, lumber and oil, operated either by the Commonwealth itself or by private parties under lease from the Commonwealth, and furnishing a service in these necessities for this section of the State sure to be of great importance. In this taking the Commission has determined values based on careful estimates made by real estate experts, and believes that it has fixed a fair price for this property. Several settlements have already been made with owners of property taken, and others are pending.

An important situation in connection with this improvement involves the incorporation by the Fore River Shipbuilding Corporation of its privately owned railroad. If it shall be found that legislative action is necessary, in order that the corporation may be allowed to incorporate this railroad, the Commission urges that such action be taken, as it is important to provide a common carrier between this proposed water terminal and the section of Massachusetts to be served through connections at Braintree Junction.

New Leases.

During the year temporary occupancy of the so-called Staples Pier, and of various lands in South Boston, has provided an increased revenue over past years for portions of the State's property not previously productive. The lease of the property on the water front occupied for some years by the Boston Molasses Company has been renewed at a rental more nearly fitting the value of the property, but the lease has been made for only a short time, as it seems wise that leases of all waterfront property owned by the Commonwealth in South Boston should expire at the same time, to provide for any change that may be deemed wise in the use of this property through possible development of terminals in metropolitan Boston.

South Boston Land.

Practically all of the land sold to private parties out of the original tract developed by the Commonwealth is now occupied by buildings, several large structures having been erected during the past year. This means that the numerous inquiries now pending before the Commission in connection with other sales are likely to result in early improvement for much of the vacant land now owned by the Commonwealth in that section of Boston. It was early appreciated by the Commission that inadequate rail facilities in this section made one of the most serious handicaps under which this land was held. The widening of the South Boston cut and the addition of extra tracks to serve this section will relieve this situation, and in connection with this railroad improvement the Commission has the assurance of the New York, New Haven & Hartford Railroad that direct connection will be given to the Commonwealth land. With the sale of land for a further development, held in check the past year by war conditions, it will be necessary for the Commonwealth to provide railroad tracks upon its own lands, and build permanent streets. To provide for this work an appropriation should be made, either through bond issue or by allowing the use of all moneys received from sale of land, to an amount of approximately \$350,000.

One of the early improvements that must be considered, both for developing commercial and industrial properties, and also providing increased water facilities, is associated with excavations and construction work along the Reserved Channel. Plans are being made for development of this section, and for connecting such development by proper railroad service, all to involve an expenditure of \$286,900.

Commonwealth Pier.

The most important situation arising in connection with the Commonwealth Pier during the past year has been the attempt to have the United States government make use of Boston as a port of embarkation for war supplies and munitions, with the Commonwealth Pier as the center for its activities. Strenuous efforts have been made by the Commission on Waterways and Public Lands to secure a favorable attitude on the part of the Federal government. Commercial bodies throughout New England, the various Representatives of Massachusetts in Congress, the Governors of New England and private individuals have all combined to agitate the importance of this step, but thus far favorable action has been denied.

Viewed from the standpoint of local service, a strong case is made as to why the immense amount of munitions manufactured in New England, the large number of troops embarking from New England, the great quantities of supplies needed in New England, all directly associated with war activities, should use Boston as a shipping point. Viewed from the standpoint of relief for other important points there is even stronger argument in favor of such use. That the Federal government may ultimately see the local advantages thus set forth, and be able to harmonize these local advantages with the larger situation involved in national service, is the hope and belief of this Commission.

Continued endeavor to thus serve the Federal government will be made by the commissioners, individually and as a body; that their interest has been of value and appreciated by officials at Washington is abundantly testified to by the cordial letters received.

While the shipping facilities of Commonwealth Pier have thus far been held to their regular commercial uses, with results set forth elsewhere, but proven to be increasingly satisfactory by the largest revenue that has ever been received for these services, the passenger portion of the pier has been of great value to the Federal government through its use by the Navy Department as a receiving ship for navy recruits. Occupancy for this purpose of that portion of the second floor used in normal conditions for passenger service began by the Federal government in April, 1917, and, under the terms of an agreement just negotiated with the Navy Department, is expected to continue until the close of the war. The space thus devoted to this service has provided accommodations for a maximum of 3,000 men, with an average of nearly 2,000 men at all times since its occupancy. The Commission has been glad to co-operate with the Navy Department, making all necessary changes and providing all possible services it could to render this portion of the pier what some of the high officials in the navy have pleased to term the most satisfactory "receiving ship" in the country.

The long-agitated and much-discussed trolley connection, by which the Fish Pier is given a trolley freight service out of Boston, and which will provide a passenger service for the people in that vicinity, has become a reality during the year. As previously referred to by the Commission in its statements regarding this improvement, it was unfortunate that the tracks should not have been laid when the work across the viaduct was originally done. A considerable saving could have been made over the cost which has of necessity been incurred in laying the track at this time, with all of the attendant expense of removing concrete and changing the construction already put in. In providing a proper freight shed in connection with the trolley freight service for the Fish Pier, the Massachusetts Committee on Public Safety co-operated by providing out of its funds \$10,000 to help in this construction. This committee was also helpful in securing the assent of the officials of the Boston Elevated Railway Company to the terms of the lease which had been so long pending.

Boston Terminals.

There would seem to be no necessity to repeat in this connection the situation which has been set forth by twenty odd investigating bodies in connection with the terminal situation in Boston. For more than a generation individuals, public boards and special commissions have been studying this situation, and almost without exception have reported in favor of action that would unite the various rail and steamship terminals by some connecting service. Almost without exception, also, this connecting service has been agreed upon as requiring a marginal railroad providing for a connection between these various terminals, a quick and economical service such as other important cities have, and upon which it is agreed without dissent Boston's position as an efficient shipping point largely depends.

Hardly a week passes at the big Commonwealth Pier, which is the latest development giving to shipping the most satisfactory service to be found in Boston, without incidents proving the inadequacy of terminal connections in Boston. Double the business could be done at that pier, and probably more than double at practically all other Boston terminals having less efficient handling methods, if proper connections existed between the pier and the railroads. The present situation places a serious handicap upon the enormous quantities of raw products used in industrial New England and the finished products that have been fabricated and must go out of Boston from New England; and handicaps not alone the profitable carrying on of these businesses in New England, but the entire nation, which is dependent upon New England for these products. How large a part the State already plays in this situation may be gained from the statement of business at Commonwealth Pier, owned and controlled by the State, where of wool, hides and cotton there was handled over \$50,000,000 worth in one recent month. As an immediate relief to this situation it is recommended that authority be given to the Commission to acquire by purchase or otherwise the tracks of the Union Freight Railroad now laid in Atlantic Avenue; to connect these tracks across Northern Avenue bridge with

tracks of the Commonwealth at the Commonwealth Pier; and to connect with any other railroad system operated in Boston. Further authority should be given, after such connections are made, for the Commission to either operate or lease this service for operation. This arrangement would provide, at comparatively little expense, the beginning of a marginal railroad operated with much greater efficiency than can now be secured, more rapidly and at a less cost, not only to shippers using the service to connect between the north and south sides of the city, but to users of the marginal railroad along Atlantic Avenue. If it is possible in other cities for this kind of service to be established at a fixed rate of \$2 per car, within a fixed period of time averaging less than half a day, it seems that it must be possible for some improvement to be secured in Boston from present conditions, where time limits are marked by the number of days involved rather than hours, and where charges are several times as large as those made under better organized conditions.

Another service capable of immediate development for intercommunication in and about Boston Harbor may be found in a properly equipped and organized lighterage system. This service would naturally come within the scope of temporary improvements for which the railroads should be responsible, but under the present conditions controlling the railroad situation in New England it is doubtful if any relief of this sort can be secured from that source. How far the Commonwealth should go in either organizing or financing this sort of service may be open to question.

The recommendations of the Commission in connection with further work of development in and about Boston Harbor at this time calls for a large expenditure of money. The Commission regrets the necessity for placing these matters before the Legislature and the people of the Commonwealth at this time, but unless the big projects already undertaken in connection with the development of the port of Boston are to be completed, a large part of the money already expended or contracted for will remain of little value to the business of Massachusetts or New England.

THE NECESSITY FOR CREATING COAL RESERVES AT TIDEWATER TERMINALS.

Massachusetts receives its supply of coal both by rail and by water. It has been customary to assume that under normal conditions about one-third is shipped all rail and the balance by water.

Owing to the lack of storage room at terminal points in Massachusetts it has been necessary for some years to maintain a fairly continuous movement of coal, both by rail and water, to prevent a shortage in supply that probably would have seriously embarrassed business at some one or all of the large centers of consumption at almost any time in recent years. The margin of safety has been extremely narrow and easily broken down by any substantial interference with the established lines of transportation.

It is obvious that the most economical and rapid method of transporting coal to tidewater points in Massachusetts is by water, and within the limits of a short rail haul from the nearest tidewater terminal it should be the cheapest method of supply for the various interior points of the eastern half of the State. It is true, however, that the railroads have attempted to supply all-rail coal in competition with water carriers by establishing disproportionately high rates on the rail distribution from tidewater terminals. There is no doubt that one of the causes leading up to the present situation is the physical inability of the railroads to handle such a large tonnage.

The high rates for rail distribution from tidewater points, together with the establishment of unloading and weighing charges at some terminals which acted unfavorably against others, has also led to the practical abandonment of certain tidewater plants which not only reshipped at one time a heavy tonnage of coal, but also had a large storage capacity. Among the large plants which have not stored coal during 1917 may be named the Philadelphia & Reading Coal and Iron Company's wharf and pockets at New Bedford, with a storage capacity of 100,000 tons; the same company's wharves at Salem and Newburyport, with a present storage capacity of 16,000 tons, but with ample room for a large increase; the Lehigh &

Wilkesbarre wharf at Salem; and the old railroad wharves at Somerset on the Taunton River, which have no storage but have ample room for a large plant.

The storage of coal at tidewater requires not only a large amount of room, but sufficient depth of water for the large barges, conditions which can be met only at a few points on the Massachusetts coast. It so happens, however, that the four plants named above are so situated with reference to water facilities, and rail connections for distribution to centers of large coal consumption, that they are valuable points for the creation of reserve supplies. The fact that they are not now actively employed is rather in their favor, because changes and additions can be made without interference with other business. Other plants capable of handling large stocks of coal might be located at Plymouth and Hyannis.

The maintenance of the coal supply of Massachusetts is of vital importance to its industries and the health and comfort of its inhabitants, and the State may well take over the creation of a sufficient number of storage stations to afford a reasonable protection against a recurrence of the situation with which they are now confronted.

Such an undertaking appears to be entirely compatible with the functions and duties of the Commission, which already has built and is now operating the Commonwealth Pier in Boston and the State Pier in New Bedford. The financial burden may be lightened by private co-operation, and in all probability the stations can be operated without cost to the Commonwealth. It would seem that the purpose of such a venture merits at least a careful investigation of the situation and the determination of the probable cost of one or more plants, — work which this Commission will be glad to undertake if authorized by legislation to do so.

It is not necessary to discuss the wisdom of past expenditures or to question past judgments in connection with any projects now demanding further expenditures; the present problem demands that the work already undertaken shall be carried to its completion if service is to come out of the expenditure already made.

Important as the Commission has felt it to be that the

position of the State should be upheld in connection with the present war activities, it is much more important that her position should be made secure after the war shall end. It cannot be made secure if we shall leave the present chaotic condition associated with the terminal service in Boston as it is; if we shall fail to complete the dry dock and provide for its operation after it is finished; if we shall fail to develop the land which the State alone possesses for many important industrial plants that must come to Boston; if we shall fail to profit from the threat which unsatisfactory transportation has this winter brought to New England; or if we shall fail in our vision to provide these and all of the other necessary adjuncts to the work already done, even though the cost may be greater at the present moment than it would have been if the need had been previously anticipated.

DETAILS OF WORK.

The following statements set forth in more detail the doings of the Commission during the year ending Nov. 30, 1917.

BOSTON HARBOR.

THE COMMONWEALTH FLATS AT SOUTH BOSTON.

Commonwealth Pier No. 5.

In order that the United States Navy Department might use a portion of this pier for emergency war purposes, particularly the larger portion of the upper floor of the central shed as a naval barracks or receiving ship, necessary arrangements were made early in the spring of 1917 to remove certain plans and documents of the Commission which were stored in a portion of this space, and to make provisions for use of other parts of the pier. It has also been necessary to operate the Commonwealth's heating plant throughout the summer for furnishing heat for cooking purposes, to use the ventilating fans and lighting equipment since this occupancy commenced, and to set aside a portion of the westerly dock for the use of the coast patrol system, the larger patrol boats being tied up at the outer end of the pier.

The work of constructing iron ladders and steps to reach the roof of the shed, under contract with the W. A. Snow Iron Works, Inc., dated Nov. 6, 1916, which was in progress at the date of the last report of the Commission, was completed Feb. 26, 1917, at a cost of \$1,315.

On Jan. 9, 1917, a contract was entered into with the E. Howard Clock Company for installing a watchman's clock system with fifty-three operating boxes at different parts of the pier. Work was completed April 23, 1917, at a cost of \$2,235. Installation of nine boxes of the American District Telegraph system, for use in case of accident to the watchman, has been deferred by reason of the use of a large part of the pier as a naval barracks.

On Jan. 11, 1917, a contract was entered into with the Hanscom Construction Company to install a system of cast-iron downspouts. This work was completed Sept. 13, 1917, at a cost of \$11,598.98.

During the year the blow-off pipe leading from the heating

plant was replaced by a larger pipe, in which the expansion is provided for by lead-filled joints, at a cost of \$489.

By reason of certain dredging of the docks and the building of a pile platform by the Navy Department during the year along the wall at the northerly side of Northern Avenue, the riprap protection to the sea wall foundation was displaced, leaving a portion of the foundation exposed. To restore the necessary protection broken stone taken from the excavation at the dry dock was deposited along the wall between this pier and the Fish Pier, the cost of the work being \$431.30. At the same time the Navy Department, at its own expense, caused riprap to be deposited along the wall between Commonwealth Pier No. 5 and the piers of the New York, New Haven & Hartford Railroad Company.

On May 24, 1917, proposals were received for the purchase of certain materials and junk remaining after construction and repair of this pier, and for which the Commonwealth had no further use. The highest bidder was the Roxbury Iron and Metal Company, and sale to it was made in the sum of \$547.45.

In addition to the repairs previously mentioned, employees of the Commission have cut out and replaced broken sections of the concrete flooring of Commonwealth Pier No. 5, and on other parts of the State's territory have repaired hydrants at the Fish Pier; cleaned catch basins and drains in Fargo and E streets; removed an obstruction in the dock east of the Fish Pier; repaired the floor of the pier on the Reserved Channel, formerly leased to the Staples Coal Company, and the pier formerly leased to said company on the northerly frontage of the Commonwealth's property, making the same safe for use in landing goods; and constructed a bin on the southerly side of the heating plant.

A statement prepared from a report of the superintendent of terminals, showing the amount of business transacted at this pier during the year and other details, is printed in the Appendix.

Dry Dock.

By section 12 of chapter 748 of the Acts of 1911 the Directors of the Port of Boston were instructed to report to the Legislature "all necessary plans and estimates of cost for the con-

struction of a dry dock equipped with modern facilities and appliances sufficient in size for the accommodation of any modern ocean steamship." These plans and specifications were prepared and bids for the construction of the masonry of the dry dock were received on June 15, 1914, and a contract executed with the lowest bidder, Holbrook, Cabot & Rollins Corporation, on June 22, 1914.

Pending the approval of this contract by the Governor and Council, by chapter 335 of the Special Acts of 1915, section 5 of chapter 748 of the Acts of 1911 was construed to authorize the construction of the dry dock, and all acts heretofore done, and all proceedings heretofore had in relation thereto were ratified and confirmed.

The contract, after being modified to provide for the addition of an intermediate sill, was approved on Oct. 13, 1915, and the contractor at once began work.

Owing to difficulties encountered in the dredging of the site and in the construction of the cofferdam the work has been seriously delayed.

At the beginning of the year the contractor, the Holbrook, Cabot & Rollins Corporation, was engaged in repairing the cofferdam which had given way the previous July. This work was completed and the water pumped from the basin on Jan. 1, 1917. Since that time the contractor has prosecuted the excavation, using two steam shovels with railroad trains. It was found that there remained, after the dredge had finished, a large quantity of earth overlying the rock. The drilling was carried down through this earth and the rock blasted ahead of the steam shovels.

The placing of concrete for the dock proper began on May 31, 1917, and had advanced so that the placing of the granite facing was begun on Sept. 12, 1917.

During the year there has been accomplished 77,630 cubic yards of earth excavation; 66,012 cubic yards of rock excavation; 2,092 cubic yards of granite facing; and 28,070 cubic yards of concrete have been placed.

At the present time the excavation has been completed for the pump well, and a portion of the foundations for the pumps and culverts placed therein. It is anticipated that all the

excavation for the dock proper will be completed during the winter, and the contractor contemplates erecting additional facilities so that the work can be pushed to completion during the coming year.

The United States government has assisted in this work to the extent of testing the quality of the cement, which is done by the Bureau of Standards, and arranging for the transportation of coal, cement and other materials, and also by assigning a civil engineer from the Navy Department to advise with our engineers.

The pumping plant is being built by the Worthington Pump and Machinery Corporation, who were the only bidders for the pumping plant for the two United States Navy dry docks, one at Philadelphia and one at Norfolk, which are being built by the United States, the price for the work being based on the same prices as are being paid by the government. The General Electric Company, as subcontractor, is building the motors and other electric work connected with the pumping plant. As the pumping plants for the three docks are being built together at the Worthington and General Electric Works, arrangements have been made so that the inspection of the work is all done by the inspection department of the government, thereby saving the Commonwealth the expense of maintaining inspectors for this work. The contract prices are: for the pumping plant, \$192,979; for the large transformers, \$14,942; for erecting the transformers, \$1,375.

The contract for the sluice gates was let to the Coffin Valve Company, who are also building similar gates for the United States docks, and in this case, also, the inspector for the United States is doing the inspection on the gates for the Boston dock as well as those for the Norfolk and Philadelphia docks. The contract price for the sluice gates is \$21,500.

The plans and specifications for the caisson to close the entrance have been prepared and submitted to and approved by the Navy Department.

Installation of Street Railway Tracks across Viaduct.

In order to lay street railway tracks across the viaduct and down the ramp, and thus furnish trolley freight facilities to the Commonwealth's property at and near the Fish Pier at South Boston, arrangements were made with the Boston Elevated Railway Company to supply materials for the construction of the track. On Oct. 25, 1917, a contract was entered into with C. W. Dolloff & Co., the lowest bidder, to construct, at an estimated cost of \$19,000, a track leading from Summer Street across the viaduct and down the ramp to a connection with the railway track on the southerly side of the ramp, with a spur leading across D Street and on to the land of the Commonwealth beyond. Work was commenced Oct. 29, 1917, and is in progress.

A contract was also entered into on Oct. 25, 1917, with Fred T. Ley & Co., Inc., to erect the trolley poles and other overhead work for the track, at an estimated cost of \$1,789. Work was at once commenced and is in progress.

In order to furnish facilities for handling the freight which will be carried by the trolley cars, plans were prepared and a contract entered into on Nov. 22, 1917, with the Gerry & Northup Company of Boston to build a wooden freight shed 200 feet long and 25 feet wide for the sum of \$8,976. This work is in progress.

Streets and Industrial Tracks at South Boston.

A plan for the further development of the Commonwealth's property south of Summer Street, contemplating a system of lots, streets and industrial tracks, has been prepared by direction of the Commission and adopted during the year. In order to provide suitable railroad connections and facilities it is proposed to substitute for the cross streets, 50 feet in width, shown on previous layout of this territory, two additional longitudinal streets parallel with C, D and E streets, with railroad tracks located in the center of the blocks so formed, only three cross streets being maintained, namely, Cypher Street at the southerly end of the property; Claffin Street at the middle; and Fargo Street at the northerly end, the con-

nection with the New York, New Haven & Hartford Railroad tracks to be made at what is known as the South Boston cut, just east of and parallel with B Street. The exact location of these tracks has been approved by the railroad company, but a connection cannot be made until the widening of the cut, now in progress, is completed, which will probably be during the coming summer. Application having been made for railroad connections with the large building being constructed by the owners of land between Fargo and Summer streets, an arrangement was made with these owners and with Tarrant P. King, who owned and operated under a permit from the Commission a railroad track leading from the railroad through what was formerly Egmont Street to buildings located north of Fargo Street between D and E streets, to make a connection between his track and a track to be built by the Commonwealth on a portion of the location conforming to its general plans. In order to build the Commonwealth's portion of the track, an arrangement was made with the New Haven Railroad to do the work, taking the ties and rails from one of the tracks in the yard north of Summer Street, not at present in use, and relaying them in the desired location south of Fargo Street and parallel with C Street. At the same time Mr. King agreed to lay the connecting track from his existing track to a new track built by the Commonwealth, and to furnish the necessary switches and crossovers in consideration of the payment of \$350, the Commonwealth to supply the rails and ties. The owners of the building to be served laid the tracks on their land and to a connection with the Commonwealth's tracks south of Fargo Street. All this work was completed in November, 1917.

Complaint was received from the abutters on the southerly side of Cypher Street, between C and D streets, that the ashes stored on that street were a nuisance, particularly as they were preparing to erect buildings on their property. These ashes were removed and used for grading the street which it is proposed to construct between C and D streets northerly of the Commonwealth playground. The cost of this work was \$1,314.01.

Northern Avenue Bulkhead.

The work of building a bulkhead along the northerly side of Northern Avenue under contract with W. H. Ellis & Son Company, in progress at the beginning of the year, was completed in January, 1917, at a cost of \$24,622.90. The area of Northern Avenue enclosed by this bulkhead has been filled to the grade of the adjoining land.

Floating Grain Elevators.

The Commission has two floating grain elevators for transferring grain from elevators at Charlestown and East Boston to vessels lying at the Commonwealth Pier. They have been lying idle at this pier for over three years, and both needed repairs and overhauling. At the request of the Chamber of Commerce that one, at least, be kept in condition for immediate use in case it should be required, the Commission arranged with Richard T. Green Company to make the necessary repairs to elevator No. 1, the total cost of a thorough overhauling being \$12,563.24. Up to the present no call has been made for its use. Elevator No. 2 will require a thorough overhauling and many repairs before it can be safely used.

THE COMMONWEALTH FLATS AT EAST BOSTON.

The work of rehandling material brought from other portions of the harbor to the East Boston flats and filling these flats to the general grade, under a contract with the Atlantic, Gulf & Pacific Company dated March 14, 1916, and a supplementary contract with the same company dated Oct. 6, 1916, providing for handling 3,570,000 cubic yards of material and filling to grade the territory lying northerly and easterly of Jeffries Point, has continued, and by Aug. 31, 1917, material to the amount of 3,287,844 cubic yards had been rehandled and placed in the fill. At that time material was being brought very slowly, and the dredge was removed for the purpose of carrying out another contract for dredging in Chelsea Creek. Upon the completion of this work the dredge returned to the East Boston flats, and up to Oct. 28, 1917, material to the amount of 3,430,716 cubic

yards had been excavated, nearly the whole amount specified in the contract. At that time the dredge was again removed to carry out a contract for the United States in connection with the construction of a shipyard at Squantum, but before leaving an arrangement was made between the Commission and the company that it would dredge another million yards at East Boston within such reasonable time as might be required by the Commission, with the provision that the company could remove its dredge at any time it became necessary to do so in connection with the emergency war work of the government. It is now anticipated that operations will be resumed in the spring of 1918, and the additional million yards dredged and placed in the fill.

The results of the operations on the East Boston flats are about 47 acres filled to the wharf level, the material used being largely clay with some silt and gravel. In order that it may be used advantageously, the areas to be occupied by streets and railroad tracks should be covered with gravel or cinders to obtain a dry top.

THE COMMONWEALTH'S TERMINAL ON WEYMOUTH FORE RIVER AND HAYWARD'S CREEK.

In furtherance of the project of establishing a terminal adjoining Weymouth Fore River and Hayward's Creek, in Quincy and Braintree, near the plant of the Fore River Shipbuilding Corporation, under authority of chapter 748 of the Acts of 1911, a taking was made by the Commission in March, 1917, approved by the Governor and Council, and a certificate thereof with plan filed in the registry of deeds for the county of Norfolk.

This taking included land and flats and all the rights, easements, title and interest of every name and nature of all persons and parties whatsoever in and to the same, and comprised about 97.14 acres, of which about 24 acres are in the city of Quincy and about 73 acres in the town of Braintree, bounding on both banks of Hayward's Creek and lying between the Fore River Shipbuilding Corporation's yard and Quincy Avenue and between Weymouth Fore River and East Howard Street. Under date of March 22, 1917, the former owners of the

property taken as aforesaid by the Commonwealth of Massachusetts were formally notified of the taking.

The Federal government has dredged the channel from Boston Harbor to the Quincy Point bridge, on Weymouth Fore River, 18 feet deep and 300 feet wide, and has made an appropriation of \$200,000, which, together with the contributions of \$75,000 by the State, \$15,000 by the Fore River Shipbuilding Corporation, and \$10,000 by the city of Quincy, will in the coming season dredge this channel to the depth of 24 feet at mean low water and 300 feet wide. Above the bridge the channel has a depth nearly up to Hayward's Creek of 20 feet at mean low water. The Fore River Shipbuilding Corporation has widened this channel on the Quincy side generally to the same depth, and has also done considerable additional dredging to secure the necessary depth opposite the launching ways in which to launch their ships.

The draw in the Quincy Point bridge, which is the only bridge between the taking aforesaid and the sea, is 125 feet wide, and at present has a channel depth of 18 feet at mean low water, and is so constructed that the depth may be increased to 24 feet at mean low water, the depth of the proposed Federal government channel.

The Federal government has done no dredging above the Quincy Point bridge except to dredge the channel in the upper reaches of the river to the depth of 6 feet at mean low water, and this portion of the channel the Commonwealth agreed in 1905 to maintain for the future.

The Commonwealth has expended over \$50,000 in the improvement of the river both above and below Quincy Point bridge, while the United States has expended nearly \$175,500, and there is now available for the improvement of the lower section of the river \$300,000.

On March 28, 1917, this Commission, with the approval of the Governor and Council, entered into an agreement with the Fore River Shipbuilding Corporation, which provided that the Commonwealth would lease to said corporation a part of the territory included in the taking made by the Commonwealth as aforesaid. The said corporation agreed that it would, not later than one year from the date of the execution of this

agreement, cause the railroad now operated by it as a private railroad connecting its plant with the New York, New Haven & Hartford Railroad to be incorporated as a common carrier, and after such incorporation would at its own expense make, or at the option of the Commission would permit the Commission to make, such connections between the said railroad and such points upon the land described in the taking made by the Commonwealth as the Commission may from time to time designate and request in writing. The corporation further agreed to co-operate in all reasonable ways with the Commission with respect to establishing wharves, piers, bulkheads and docks for public use on that part of the land not included in the industrial location occupied by it under the lease.

On March 28, 1917, this Commission, with the approval of the Governor and Council, leased to said corporation, as a site or location for an industrial establishment, a parcel of upland and flats containing about 19.756 acres adjoining the yard of said corporation and extending from East Howard Street to Weymouth Fore River, being a part of the land and flats taken by the Commonwealth as aforesaid and located in the city of Quincy. This lease is for the term of twenty years commencing March 28, 1917, and provides, in part, as follows:—

The Lessee for itself and its successors and assigns hereby covenants and agrees with the Lessor, its successors and assigns to pay to the Lessor as rent for the premises leased hereunder the sum of five thousand dollars (\$5,000) annually, payable in equal semi-annual installments on the twenty-eighth days of September and March, respectively, in each year of the said term up to and including any year in which the actual cost of all the land taken March 21, 1917, as aforesaid, shall have been determined and shall have been paid by the Commonwealth, and thereafter annually during the remainder of the said term a sum equal to 5% of the total actual cost of all the land taken as aforesaid payable in equal semi-annual installments on the twenty-eighth days of September and March, respectively; and also to pay all taxes, water rates and assessments whatsoever to which said premises or any part thereof may become liable during the said term excepting however assessments for any permanent benefit or improvement to said premises under any betterment law.

And the Lessee for itself and its successors and assigns further covenants and agrees with the Lessor and its successors and assigns that when

the total actual cost as hereinafter defined of all the said land shall have been determined and paid as aforesaid, and written notice thereof shall have been given by the Lessor to the Lessee, if the aggregate amount of the annual payments of five thousand dollars (\$5,000) theretofore made shall be less than the aggregate amount of an equal number of annual payments at the rate of 5% of the total actual cost of all the land so taken the Lessee shall pay to the Lessor a sum equal to the difference between the aggregate amount of the payments of rent theretofore actually made and the aggregate amount of an equal number of payments at the rate of 5% on the total cost of all the said land; *provided, however*, that if the aggregate amount of the payments of rent theretofore actually made shall exceed the aggregate amount of an equal number of annual payments at the rate of 5% on the total actual cost of all the said land, the Lessor shall credit a sum equal to the difference between the said amounts upon the subsequent payments of rent by the Lessee at the rate of five hundred (500) dollars upon each such payment until the same shall have been fully credited.

The total actual cost of the land so taken shall be determined by the amounts actually paid by the Commonwealth in settlement of claims on account of land so taken or upon judgments therefor, including any interest contained in such judgments, or paid by the Commonwealth in consequence of any legal proceeding for the taking of the said land or for determining the compensation to be paid therefor; *provided, however*, that the said total actual cost as herein defined shall from time to time be reduced by deducting therefrom any sum or sums, received by the Lessor as consideration for the sale of any part or parts of the land included in said taking and not demised hereby, in excess of any amount or amounts expended by the Lessor in the improvement of such lands, with interest thereon at the rate of four per cent per annum from the time of such expenditure to the time of receipt of such sum for such sale; and *provided further*, that the annual rental to be paid by the Lessee, as provided herein, shall from time to time be reduced by deducting therefrom the net amount of any income received by the Lessor from any and all leases of any part or parts of the land included in said taking and not demised hereby in excess of a return of four per cent per annum upon any moneys expended in the improvement or development of the land so leased; *provided, further*, however, that the annual rental to be paid by the Lessee shall in no event be less than a sum equal to five per cent of the total actual cost as hereinbefore defined of the herein demised premises.

The Lessee for itself and its successors and assigns further covenants and agrees with the Lessor and its successors and assigns that it will occupy and use the leased premises as and for a location or site for an industrial establishment and not otherwise, and that it will not assign this lease nor underlet or part with the possession of the said premises or any part thereof without the previous consent in writing of the Lessor

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CONCRETE BLOCK REPAIRS AT BOSTON

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CHELSEA CREEK.

The Mexican Petroleum Corporation has built during the year a large wharf on the Chelsea side of Chelsea Creek just above the Grand Junction Railroad bridge. In order to accommodate its large vessels it was necessary to dredge the channel, also the basin in front of this wharf, to the depth of 25 feet at mean low water. In view of the general advantage to navigation which would result from this dredging, the Commission arranged with the Mexican Petroleum Corporation to pay one-half the cost of the dredging operations up to an amount not exceeding \$60,000. A portion of this work has been done by the Atlantic, Gulf & Pacific Company under two contracts, one with the Commonwealth and one with the Mexican Petroleum Corporation. The balance of the Commonwealth's portion of the work is now in progress. Up to Dec. 1, 1917, 275,695 cubic yards have been dredged, the Commonwealth's half of the expense of this work being \$21,325.01.

Under the above contracts the channel has been dredged to a depth of from 18 to 25 feet at mean low water, and to a width of about 250 feet, extending from the railroad bridge up the creek about 2,100 feet.

The balance of the work to be done by the Commonwealth is the excavation of 140,000 cubic yards, which will be toward completing the channel to the full depth of 25 feet.

The corporation has undertaken to complete the balance of the dredging originally contemplated, as well as the dredging, to the depth of 30 feet at mean low water for a berth in front of its own wharf. In addition to the above the corporation has excavated the channel through the draw-ways in both the Grand Junction Railroad bridge and Chelsea Street bridge, and the channel between those bridges, to the depth of 25 feet at mean low water, at its own expense.

MYSTIC RIVER.

The dredging of the middle ground in Mystic River opposite Mystic Wharf, under contract with the Maryland Dredging and Contracting Company, dated March 8, 1916, in progress at the beginning of the year, has been completed at a cost of

\$47,457.59, the contract price being 11.85 cents per cubic yard.

The work of dredging in this river from Mystic Wharf to the Charlestown playground to the depth of 30 feet at mean low water, under contract with the Maryland Dredging and Contracting Company dated June 27, 1916, has been completed to the extent that a channel of substantially 30 feet in depth at mean low water and about 350 feet wide has been dredged, with the exception of a small shoal at the easterly end which has a least depth of 27 feet. The contract has been closed. In all 1,430,473 cubic yards have been excavated at a cost of \$185,769.45, the contract price being 12.95 cents per cubic yard. All this material was taken to the receiving station at East Boston and used for filling purposes.

By chapter 337 of the Special Acts of 1915 the Directors of the Port of Boston were directed to dredge in Mystic River at Malden bridge for the purpose of providing a channel through the new draw-opening to be constructed by the Boston Elevated Railway Company and the city of Boston in Malden bridge. This work was completed last year with the exception of a small area lying directly under the bridge which could not be reached by the dredge.

In July, 1917, the changes in this bridge had proceeded to an extent which made it necessary to dredge out this small area in order that vessels might use the new draw, and a contract was entered into with the Bay State Dredging and Contracting Company, the lowest bidder, on Aug. 21, 1917, to do this work for the sum of \$595, the same being completed Aug. 25, 1917.

SEA WALL AT HOUGH'S NECK, QUINCY.

Under chapter 363 of the Special Acts of 1917, appropriating \$15,000 therefor, a survey and estimate were made of the cost of building a structure or sea wall at Hough's Neck, in Quincy. The city of Quincy appropriated \$5,000 towards the cost of the work, paid the same into the treasury of the Commonwealth, made a further appropriation for filling back of said wall, and obtained releases from property owners who might have claims on account of the construction of this wall. A contract was entered into on Sept. 18, 1917, with Dennis F. Crowley of

Quincy, the lowest bidder, the contract prices being: for furnishing the materials and building the granite masonry sea wall, including excavating, back-filling and all incidental work, \$11.90 for each linear foot of completed wall 10 feet high; \$9 for each linear foot of completed wall 7 feet high; \$8 for each linear foot of completed wall 6 feet high; for furnishing and placing riprap, including weighing and incidental work, \$2.45 for each ton of 2,000 pounds in the completed work. Work is in progress, but it is not probable that it will be completed by the date named in the contract, namely, Dec. 31, 1917, as it was late in the season when the contract was made.

Amount expended during the year, \$469.37.

FURTHER IMPROVEMENT AND DEVELOPMENT OF THE PORT OF BOSTON.

The Commission, for the purpose of further improving and developing the port of Boston, deems it both necessary and desirable that the work hereinafter described, which is enumerated in the Commission's estimate for appropriations for the year 1918, filed with the Auditor of the Commonwealth, as required by law, should be carried into effect, and recommends that the necessary legislation be enacted for completing the dry dock at South Boston; for building on the Commonwealth Flats at South Boston railroad tracks south of Summer Street, paving streets and constructing sewers; for laying tracks, constructing an avenue, building a platform on the Reserved Channel, and excavating in said channel on the Commonwealth Flats at South Boston; for laying tracks, constructing streets and dredging and filling at and near the Commonwealth Flats at East Boston; for development and improvement of the territory belonging to the Commonwealth at and near Weymouth Fore River and Hayward's Creek, in the city of Quincy and town of Braintree.

Legislation is also recommended providing for the acquisition by purchase or otherwise of the location, tracks and trackage rights and privileges of the Union Freight Railroad Company in Boston, or any part thereof; for connections with such tracks and locations to and from any piers or terminals; and for laying tracks along Northern Avenue and across Northern

Avenue bridge, and in any public way or ways lying between Atlantic Avenue and the water front of Boston.

These recommendations have been embodied in drafts of bills submitted.

Attention is invited to the map of Boston Harbor printed herewith showing, in addition to other features, the various parts of the harbor which have been dredged and improved by the Federal government and by the Commonwealth of Massachusetts, as well as locations where protective works have been carried out; the territory belonging to the Commonwealth at South Boston, the piers and terminals there built, and the site of the dry dock now under construction; the Commonwealth Flats at East Boston; the various railroad and steamship terminals, railroad lines, piers and docks, and the location of the Fore River plant of the Bethlehem Shipbuilding Corporation, Ltd., as well as the large area on Weymouth Fore River and Hayward's Creek taken by the Commonwealth for industrial and terminal purposes; certain localities where the city of Boston has carried out public works comprising parks, playgrounds and boulevards.

Reference is made to the tables printed in the Appendix showing expenditures by the Commonwealth for development and improvement in Boston Harbor from 1870 to 1917, inclusive; showing appropriations, contributions and expenditures for improvement of small harbors and channels within Boston main harbor from 1893 to 1917, inclusive; and certain appropriations and expenditures by the Federal government for Boston Harbor.

RIVERS, HARBORS, TIDEWATERS AND FORESHORES,
EXCLUSIVE OF BOSTON HARBOR.

By chapter 481 of the Acts of the year 1909 the Board of Harbor and Land Commissioners was authorized and directed to undertake such work for the improvement, development, maintenance and protection of rivers, harbors, tidewaters and foreshores within the Commonwealth as it may deem to be reasonable and proper, and to expend during the years 1910, 1911 and 1912 a sum not exceeding \$300,000, not more than \$100,000 to be expended in any one year, provided, however, that an unexpended balance in any year may be used in the succeeding year.

This act also provided that the Board shall consider the general public advantage of the proposed work, the local interest therein as manifested by municipal or other contributions therefor, the importance of the industrial or commercial and other interests to be especially served thereby, and any other material considerations affecting the feasibility, necessity or advantage of the proposed work or the expenditure therefor. It was further provided that no work shall be commenced until after a public hearing has been held and a survey and estimate of cost have been made; that a city or town might appropriate money for the improvement of rivers, harbors, tidewaters and foreshores within its jurisdiction, the money so appropriated to be paid into the State treasury, to be expended by the Board for said purposes; and that the city or town might assume liability for all damages to property suffered by any person by any taking of land, or of any right, interest or easement in land within the city or town made by the Board for the purposes authorized by the act. By chapter 318 of the Special Acts of 1916 the Board was authorized to expend during the years 1916, 1917 and 1918 a sum not exceeding \$750,000 for the purposes defined in the act of 1909 aforesaid, not more than \$250,000 to be expended in any one year, except that an unexpended balance in any year may be used in the succeeding year for the said purposes.

Petitions under the act of 1909 aforesaid have been filed with the Commission during the year for surveys and improvements in the following localities: Bucks Creek, Chatham; Connecticut River, South Hadley; Cotuit Harbor; Ellisville Harbor, Plymouth; Gloucester Harbor; Herring River, Harwich; Hough's Neck, Quincy; Humarock Beach, Scituate; Lynn Harbor; Manchester Harbor; Namquoit River and Pleasant Bay, Chatham and Orleans; Nobscusset Point, Dennis; North Truro Shore; Pines River, Revere; Point of Pines, Revere; Plymouth Harbor; Revere Breakwater; Rockport Harbor; Sandwich Harbor; Scituate Harbor; Sesuit Harbor, Dennis; South Somerset Shore; West Bay, Barnstable; Winthrop Harbor; Yarmouthport Harbor.

Other than the holding of public hearings, and in some cases the making of surveys and estimates of cost, no conclusive action as to allotments has been taken during the year for carrying into effect improvements under petitions relating to Bucks Creek; Humarock Beach; Lynn Harbor; Manchester Harbor; Namquoit River and Pleasant Bay; North Truro Shore; Pines River; Plymouth Harbor; Point of Pines; Revere Breakwater; sea walls at Second Cliff and the Glades, Scituate; Sesuit Harbor; South Somerset Shore; Yarmouthport Harbor.

For information relating to the work accomplished in the various harbors and rivers throughout the Commonwealth, not specifically described in this report, attention is invited to the annual reports of the former Board of Harbor and Land Commissioners, and to the annual report of the Commission on Waterways and Public Lands for the year 1916; also to the tables in the Appendix, which show localities, character of work, appropriations, contributions and expenditures by the Commonwealth, and certain appropriations and expenditures by the Federal government.

APPONAGANSETT HARBOR.

In December, 1916, the Commission considered a report of its engineer concerning the removal, as recommended by the United States inspector of the Second Lighthouse District, of a spindle erected inside the breakwater at the entrance to this

harbor in the town of Dartmouth. Under an agreement with Frank C. Taylor this beacon and its concrete base were removed. After this was done an examination showed that instead of a number of small bowlders the beacon marked an outcrop of ledge about 20 feet square, covered at low tide by about 4 feet of water. This ledge was removed to the depth of the surrounding bottom, about 10 feet at low water. The cost of the work was \$668.82.

Amount expended during the year, \$693.87.

Total expenditure to Dec. 1, 1917, \$55,786.05.

BARNSTABLE HARBOR.

The work of dredging a channel and basin in this harbor, under contract of April 11, 1916, with the Gerrish Dredging Company, was completed July 21, 1917. At the completion of the work a channel had been dredged 100 feet wide on the bottom from the 8-foot contour in the harbor to the basin excavated in Maraspin Creek, a distance of about 2,050 feet, and a basin 400 feet long and 150 feet wide excavated, both channel and basin to a depth of 8 feet at mean low water.

Amount expended during the year, \$7,267.01.

Total expenditure to Dec. 1, 1917, \$14,900.75.

BASS RIVER, DENNIS AND YARMOUTH.

During the early months of 1917 complaint was received by the Commission as to the condition of the east jetty at Bass River. After an examination and report by the engineer plans and specifications were prepared, and proposals were received June 21, 1917.

On Sept. 10, 1917, a contract was entered into with John R. Burke for repairing the planking to about 600 feet in length of the outer portion of the easterly jetty at the entrance to this river. The contract price for this work is the lump sum of \$1,560. Work is in progress.

Amount expended during the year, \$1,379.27.

Total expenditure to Dec. 1, 1917, \$71,553.22.

CONNECTICUT RIVER.

Chicopee.

Work under contract of Aug. 18, 1916, with Dennis F. Crowley, for the construction of a concrete retaining wall with stone riprap in front of the same on the east bank of the Connecticut River in Chicopee, was completed Dec. 26, 1916. The work consisted of the construction of a concrete retaining wall at the foot of the bank for a distance of 415.4 feet south-erly from the wall built by the Commonwealth in 1915, and the facing of the foot of the wall with riprap to prevent it from erosion during high stages of the river. The total cost under this contract was \$8,696.94.

Amount expended during the year, \$7,879.07.

Total expenditure to Dec. 1, 1917, \$25,789.02.

South Hadley.

On March 28, 1917, hearing was held on a petition of Alvin H. Wilson and others for an increase in the height of the wall built by the Commonwealth in 1915 on the east bank of the Connecticut River between the factory of the Hadley Mills and the county bridge in South Hadley. Plans and specifications were prepared, and proposals received Sept. 4, 1917.

On Sept. 10, 1917, a contract was entered into with Daniel O'Connell's Sons for the construction of an addition to the top of this wall, the contract price being \$13 per cubic yard of concrete measured in place in the completed work. Work was completed Oct. 1, 1917, and consisted of the building of a concrete addition 4 feet high to the top of the wall previously built, at a cost of \$2,239.90.

Amount expended during the year, \$2,333.62.

Total expenditure of Dec. 1, 1917, \$7,379.58.

Westfield River, Chicopee River, Deerfield River and Millers River, Tributaries of Connecticut River.

Jurisdiction by this Commission as comprehensive as that now contained in existing laws relating to the Connecticut River is recommended with respect to Westfield, Chicopee, Deerfield and Millers rivers, important tributaries thereof.

The necessity for the prevention of undue encroachments upon the waters of these tributaries, and for the regulation, control and licensing of structures therein, calls for the same supervision that is required along the banks of the Connecticut River.

This recommendation has been embodied in a draft of a bill submitted.

COTUIT HARBOR.

Hearing was held March 28, 1917, on petition of George F. Dennis and others, for dredging a channel to Cotuit Harbor in Barnstable. After a survey, examination and report proposals were received June 21, 1917.

On June 26, 1917, a contract was entered into with John R. Burke to dredge to this harbor a channel 8 feet deep at mean low water for a width of 100 feet on the bottom, from the 8-foot contour in Nantucket Sound to the basin south of Bluff Point. The contract prices for this work are: for dredging channel and disposing of the dredged material, including boulders 1 cubic yard or less in volume, 46.9 cents for each cubic yard, scow measurement; for excavating boulders in excess of 1 cubic yard and not greater than 5 cubic yards in volume, and disposing of the same, \$10 for each cubic yard. Work is in progress.

Amount expended during the year, \$1,719.71.

Total expenditure to Dec. 1, 1917, \$32,520.13.

DEACONS POND HARBOR, FALMOUTH.

In July, 1917, complaint was received by the Commission of conditions at the westerly jetty at Deacons Pond Harbor. An examination was made by the engineer and a report presented.

On Oct. 9, 1917, a contract was entered into with William W. Phinney for the construction of a concrete sea wall on the westerly side of the channel at the harbor entrance, the contract price being the lump sum of \$800. Work was completed Nov. 22, 1917, and consisted of a concrete wall about 6 feet in height, built back of the riprap on the westerly side of the channel from the inshore end of the jetty northerly a distance of about 192 feet, the purpose of the structure being

to protect the shore from the wash of the seas that in southeasterly gales go over the top of the riprap.

Amount expended during the year, \$842.65.

Total expenditure to date, \$60,843.68.

ELLISVILLE HARBOR, PLYMOUTH.

Ellisville Harbor, or Salt Pond, is a tidal estuary of Cape Cod Bay situated on the easterly side of the main highway from Plymouth to Sagamore, about 5 miles by water from the entrance to the Cape Cod Canal. It has an area of about 15 acres at mean high water, and is connected with the sea by a narrow and crooked channel through a marsh to a raised strip of sand and gravel beach, which it parallels in a southerly course for about 700 feet to its outlet into Cape Cod Bay. The location of the outlet is not permanent and is constantly shifting. Only very shoal draft boats can enter this harbor for a short period of time before and after high water.

On March 28, 1917, hearing was held on a petition of Percy H. Marsh and others for the improvement of this harbor by the establishment of a permanent entrance of sufficient depth for use by the fishermen. After a survey, examination and report of the engineer proposals were received on Aug. 9, 1917, and on Aug. 21, 1917, a contract was awarded to Dennis F. Crowley to excavate a channel and basin, and riprap the banks of the channel at this harbor. The channel is to be about 30 feet wide on the bottom, which is to be excavated to 2 feet above mean low water. The basin is to have an area of about 20,000 square feet excavated to mean low water. The sides of the channel are to be riprapped from the bottom to 12 feet above mean low water, and the banks to be graded to a uniform slope of 1 on 2 before the riprap is placed. The contract prices are: for dredging a channel and basin and depositing the dredged material, including boulders 1 cubic yard or less in volume, 78 cents per cubic yard of material excavated and measured *in situ*; for furnishing stone and depositing it in place on the sides of the channel, \$3.65 per ton of 2,000 pounds. Work is in progress.

Amount expended during the year, \$8,174, which is also the total expenditure to Dec. 1, 1917.

FALL RIVER HARBOR.

State Pier.

Reference is made to the report of the Commission for the year ending Nov. 30, 1916, setting forth the provisions of chapter 279 of the General Acts of 1915 authorizing the construction of a public pier and other necessary structures and connections on the water front of Fall River; the various sketch plans, studies and estimates of cost; the votes passed by the former Board of Harbor and Land Commissioners; the license granted to the Old Colony Railroad Company to do certain filling in Fall River Harbor adjoining its Globe freight yard, enabling it to make the necessary railway connections with the proposed pier; and conferences held with the mayor and other officials of Fall River.

The Commission is informed that the city of Fall River has as yet done nothing more than agree with the railroad company as to the price of the land for the location of the public pier, and requested that the company prepare a deed.

Total expenditure to Dec. 1, 1917, \$854.10.

FALMOUTH HEIGHTS, FALMOUTH.

On March 28, 1917, hearing was held, on petition of the selectmen of the town of Falmouth and others, for the construction of a sea wall at Falmouth Heights Bluff in the town of Falmouth. No further action has been taken in relation to this matter.

In February and April of 1917, the attention of the Commission was called to the condition of the sea wall built by the Commonwealth at Falmouth Heights in 1914. Storms and the action of extreme tides had resulted in damage to two different sections of this wall, making reconstruction and repair necessary to continue the protection of the bank and prevent further injury to the remaining portions of the wall. Under agreements with Nathan S. Ellis, the necessary repair work was carried out at a cost of \$1,238.29.

Amount expended during the year, \$1,238.29.

Total expenditure to Dec. 1, 1917, \$6,863.51.

GLOUCESTER HARBOR.

On March 28, 1917, hearing was held, on the petition of Henry F. Brown and others, for further dredging in Gloucester Harbor. Proposals were received on June 14, 1917, and on June 19, 1917, a contract was entered into with the Gerrish Dredging Company for dredging a channel parallel to the harbor line in East Gloucester and southeasterly from Five Pound Island. The contract prices are: for dredging channel and disposing of the dredged material, including bowlders 1 cubic yard or less in volume, 34 cents per cubic yard, measured in scows; for excavating bowlders in excess of 1 cubic yard and not greater than 5 cubic yards in volume, and disposing of the same, \$10 per cubic yard.

Work was completed Sept. 5, 1917, and consisted of dredging a channel, parallel to the harbor line, about 800 feet long, 100 feet wide on the bottom, and 12 feet deep at mean low water.

Amount expended during the year, \$10,026.32.

Total expenditure to Dec. 1, 1917, \$33,332.09.

GUN ROCK POINT, HULL.

In February, 1917, a request was received from the selectmen of Hull for the construction of an extension to the breakwater built by the Commonwealth in 1916 off Gun Rock Point. In April, 1917, the town of Hull appropriated \$10,000 as a contribution toward the cost of the work desired. Proposals were received on June 14, 1917, and on June 19, 1917, contract was awarded to the Rockport Granite Company providing for an extension to this breakwater. The extension is to be about 200 feet long, 12 feet wide on the top, which shall be at an elevation of 15 feet above mean low water, with sides sloping at an angle of 1 on 1. The top of the existing breakwater is to be raised to 15 feet above mean low water with a width of 12 feet. The contract price for furnishing the stone and depositing the same in place in extension of the breakwater is \$1.87 per ton of 2,000 pounds. Work was completed Nov. 10, 1917. The total length of this breakwater is now about 375 feet.

Amount expended during the year, \$38,796.33.

Total expenditure to Dec. 1, 1917, \$53,141.86.

HERRING RIVER, HARWICH.

On March 28, 1917, hearing was held, on petitions of the selectmen of Harwich and others, for dredging and for the building of bulkheads and jetties at Herring River. Proposals for dredging were received on Aug. 9, 1917.

The town of Harwich having contributed \$500 toward the cost of the improvement desired, a contract was entered into on Aug. 21, 1917, with John R. Burke for dredging the channel in this river from the 6-foot contour about 800 feet southerly from the southerly end of the westerly jetty, northerly between the jetties to the fish houses, a total distance of about 1,900 feet, to a depth of 5 feet at mean low water for a width of not less than 30 feet on the bottom. The contract price is the lump sum of \$5,000. Work is in progress.

Amount expended during the year, \$1,346.27.

Total expenditure to Dec. 1, 1917, \$36,456.69.

LITTLE HARBOR, MARBLEHEAD.

On March 28, 1917, hearing was held, on a petition of the selectmen of Marblehead and others, for dredging in Little Harbor. After survey, examination and report, proposals were received on Sept. 10, 1917.

The town of Marblehead and individuals having contributed \$2,500 toward the cost of the improvement, a contract was entered into on Sept. 18, 1917, with the George T. Rendle Company for dredging a basin, to be located northwest of Gerry Island and over an area of about 100,000 square feet to a depth of 6 feet at mean low water. The contract prices are: for dredging and disposing of the dredged material, including boulders 1 cubic yard or less in volume, 49 cents for each cubic yard, scow measurement; for excavating boulders in excess of 1 cubic yard and not greater than 5 cubic yards in volume, and disposing of the same, \$14 for each cubic yard. Work is in progress.

Amount expended during the year, \$635.65, which is also the total expenditure to Dec. 1, 1917.

LYNN HARBOR AND SAUGUS RIVER.

As stated in the report of the Commission for 1916, not all the work contemplated under the contract of Oct. 6, 1914, with the Eastern Dredging Company was completed. On March 22, 1917, proposals for dredging the outer portion of the channel to Saugus River were received, and on March 26, 1917, a contract was entered into with the Bay State Dredging and Contracting Company for dredging this channel 12 feet deep at mean low water from the 12-foot contour southerly of the Point of Pines to the completed portion of the channel, about 2,600 feet northerly, the width of the bottom to be determined by the Commission and not to exceed 150 feet. The contract prices were: for dredging a channel and disposing of the dredged material, including boulders 1 cubic yard or less in volume, 59 cents per cubic yard, measured in scows; for excavating boulders in excess of 1 cubic yard and not greater than 5 cubic yards in volume, and disposing of the same, \$12 per cubic yard. Work was completed Aug. 10, 1917, and the channel is now 150 feet wide on the bottom and 12 feet deep at mean low water to the wharf of the General Electric Company above the Boston & Maine Railroad bridge.

Amount expended during the year, \$22,618.01.

Total expenditure to Dec. 1, 1917, \$117,571.12.

NEW BEDFORD STATE PIER.

By chapter 693 of the Acts of 1914 the Board of Harbor and Land Commissioners was authorized to reconstruct and extend the present southerly pier owned by the city of New Bedford, and to reconstruct the pier adjoining the same on the north; to build sheds or other buildings on said piers, and to provide the necessary equipment and appliances for handling freight and receiving passengers; to also fill solid and dredge and to do such other work as might be necessary to carry out the purposes of the act for the improvement of the harbor and terminal facilities of the city of New Bedford. The appropriation was \$350,000.

On Jan. 5, 1915, a contract was entered into with the W. H.

Ellis & Son Company to carry into effect the work called for in the plans and specifications, involving an expenditure of \$315,697.25. The time for completion was Feb. 1, 1916, subsequently extended to Sept. 15, 1916. A plan of this pier and a description of the work to be done are contained in the annual report of the Board of Harbor and Land Commissioners for the year 1914.

On Nov. 30, 1916, the total expenditure on account of the construction of this pier amounted to \$282,892.34, and the work was about 85 per cent. completed.

On June 7, 1917, a contract was entered into with Lafrance & Roesbeck to pave the driveway in the steel shed and the surface of the pier east of the shed with a concrete pavement, at a contract price of \$8.75 per cubic yard of concrete measured in place. Work was completed Aug. 14, 1917, at a total cost of \$4,021.50.

On Oct. 2, 1917, a contract was entered into with the General Fire Extinguisher Company of Massachusetts to equip the steel shed on this pier with a dry pipe system of automatic sprinklers and fire-extinguishing apparatus at a contract price of \$7,000 for furnishing and installing automatic sprinklers and fire-extinguishing apparatus and for furnishing additional sprinklers at \$4.50 each. This work is in progress.

On Oct. 25, 1917, a report of W. F. Williams, engineer, certifying that the construction of this pier and shed was completed Sept. 4, 1917, was submitted to the Commission.

Operation from Nov. 3, 1916, to Nov. 27, 1917.

No attempt was made to secure business until the latter part of 1917, in view of the fact that the contract with the W. H. Ellis & Son Company aforesaid was not completed until Sept. 4, 1917. During the period Dec. 1, 1916, to Nov. 27, 1917, 49 vessels, including 8 steamers, 1 bark, 11 schooners, 23 barges, 6 tow boats and several lighters and scows, used the pier for discharging and loading freight and passengers. Included in this list of vessels were 14 sailing packets from the Cape de Verde Islands, which landed 962 passengers at the immigration shed, for which a fee of 25 cents per head was

collected; but no charge was made to the Federal government for the use of the building by the officials of the Immigration and Customs Service.

This building was erected by the city of New Bedford, at the request of the United States Commissioner of Immigration, for the purpose of examining immigrants, and no charge was made by the city for its use.

Up to the present time all vessels using the pier have been charged a flat rate of \$1 per day for wharfage, which covers freight received or discharged. This rate is the same as that established by the city of New Bedford and in force at the city's piers. The adoption by the Commission of the classification in use at Commonwealth Pier No. 5 at South Boston, as shown in a publication by the A. T. Howard Company, Dec. 1, 1917, less 10 per cent., is under advisement as the rates for the State Pier at New Bedford.

A total of 2,400 bales of cotton was stored in the shed on the pier for varying periods from the latter part of May to first part of July, 1917, by William G. Welsh of New Bedford.

In July, 1917, conference was held with the representatives of the New Bedford Storage Warehouse Company relative to the use of this pier for receiving and shipping merchandise by water and for storage purposes, and later a proposition was submitted by this company covering such use of this pier and buildings on the same, which was accepted by the Commission.

The New Bedford division of the Naval Coast Defence Service have had the use of one-half of the north side of the pier and a portion of the shed since the latter part of June, 1917. This use is about to terminate, as the Navy Department has secured a wharf and buildings in Fairhaven, which are being remodeled for occupation and will be completed in the near future.

In November, 1917, the Commission concluded that charge be made against the Navy Department for the use of this pier, at the rate of \$300 per month, commencing July 1, 1917.

On Nov. 25, 1917, the Ward Line steamer "Antilla" arrived at this pier with a cargo of 8,000 bales of sisal from Progreso, Yucatan, consigned to the New Bedford Storage Warehouse Company, which was discharged into the shed, and the steamer

sailed the next day at noon. Another steamer is due from Progreso early in December, and the warehouse company has assurances that other cargoes will follow, including all water shipments of cotton, which would indicate that this company will be able to utilize all of the shed room and the pier facilities connected with it.

The Commission proposes to install all necessary hoists, to supply other equipment for the shed, including gangways, platforms, bridges across the driveway and platform scales, and to provide fireproof doors for fitting both ends of the driveway.

The receipts from this pier to Nov. 28, 1917, are as follows: —

Wharfage,	\$398 76
Sale of water,	188 59
Passenger fees,	279 50
Storage of cotton,	381 40
	<hr/> \$1,248 25

Amount expended during the year, \$49,595.77.

Total expenditure to Dec. 1, 1917, \$332,488.11.

Claims against the W. H. Ellis & Son Company, on account, largely, of labor and materials furnished in connection with the construction of this pier, have been filed with this Commission in addition to those previously filed with the Board of Harbor and Land Commissioners, and the contractor has also filed claims on account of extra work, etc. The Attorney-General's department is advising this Commission with respect to these matters, which have not as yet been adjusted.

NOBSCUSSET HARBOR, DENNIS.

During the year only a small amount of work was done under the contract of April 11, 1916, with the Maryland Dredging and Contracting Company for the improvement of this harbor. In April, 1917, the contractor requested an extension of time for the completion of this work by reason of abnormal conditions resulting from the war, difficulty in obtaining coal and the scarcity of tug boats for towing. After

a report upon this matter by the engineer the Commission allowed an extension to Sept. 1, 1918.

On March 28, 1917, hearing was held, on a petition of the chairman of the selectmen of Dennis, for an increase in the height of the breakwater built by the Commonwealth at Nobscusset Point in 1915, and on Oct. 4, 1917, a contract was entered into with Jehiel R. Crosby and Joyce Taylor for building a riprap wall against the southerly side of the shore section of the timber bulkhead built by the Commonwealth. This wall is to extend in an easterly direction from the bank, with the top of the wall 3 feet wide and 4 feet above the top of the bulkhead. The faces of the wall are to be built on a slope of 1 on 1, with the lower stone of the sea face close to the bulkhead. The base is to be about 13 feet wide. The contract price for this work is \$3.25 per ton of 2,000 pounds for furnishing and placing stone. Work was completed Nov. 17, 1917.

Amount expended during the year, \$2,366.66.

Total expenditure to Dec. 1, 1917, \$17,951.47.

PLYMOUTH HARBOR.

Work under contract of June 29, 1916, with the Boston Dredging Company for dredging an extension of Goose Point Channel in Plymouth Harbor has been in progress during the year. The dredging, begun at the 12-foot contour on the in-shore end of the channel, was extended in a southerly direction about 1,600 feet. The channel has been made 60 feet wide on the bottom and 12 feet deep at mean low water, and carried to within a short distance of the point originally selected for the terminus of the work.

Amount expended during the year, \$7,602.01.

Total expenditure to Dec. 1, 1917, \$218,162.88.

POPPONNESSET BAY, BARNSTABLE AND MASHPEE.

The work of dredging a channel in Popponnesset Bay in the towns of Barnstable and Mashpee, under contract of Aug. 2, 1916, with the Bay State Dredging and Contracting Company, was completed Dec. 8, 1916. The work consisted of the dredging of a channel about 1,200 feet long at the entrance

to this bay and two sections of channel within the bay, one 500 feet long and the other 600 feet long, all 60 feet wide on the bottom and 6 feet deep at mean low water.

Amount expended during the year, \$10,078.39.

Total expenditure to Dec. 1, 1917, \$15,463.03.

ROCKPORT HARBOR.

On March 28, 1917, hearing was held, on petition of John H. Dennis and others, for the removal of ledge at the entrance to Long Cove, Rockport, and the cutting down of a ridge around the basin previously dredged. A survey and examination was made later and a report of the engineer submitted.

On June 19, 1917, a contract was entered into with Thomas Fitzgibbon for the necessary dredging between the wharves and the basin dredged by the Commonwealth in 1914. The contract price was the lump sum of \$800. Work was completed Sept. 15, 1917.

Amount expended during the year, \$840.82.

Total expenditure to Dec. 1, 1917, \$13,707.33.

SANDWICH HARBOR.

On March 28, 1917, hearing was held, on a petition of George F. Dennis, for dredging and extension of jetties in Sandwich Harbor. A survey and examination was made, and on Aug. 9, 1917, proposals were received.

A contract with the Bay State Dredging and Contracting Company was entered into on Sept. 18, 1917, for dredging the channel to this harbor to a depth of 6 feet at mean low water and a width on the bottom of about 50 feet; the westerly jetty to be extended inshore to the crest of the beach with stone rip-rap. The contract prices are: for dredging channel and disposing of the dredged material, including boulders 1 cubic yard or less in volume, the construction and maintenance of dikes, the rehandling of material, and all incidental work, 55 cents per cubic yard, scow measurement; for furnishing stone and depositing it in place in extension of jetty, \$3.50 per ton of 2,000 pounds. Work is in progress.

Amount expended during the year, \$10,207.93.

Total expenditure to Dec. 1, 1917, \$67,563.75.

SCITUATE HARBOR.

On March 28, 1917, hearing was held, on petition of the selectmen of Scituate, for further dredging in Scituate Harbor. A survey and examination were made, and estimates of cost prepared. Proposals were received on Aug. 9, 1917, and a contract under that date was entered into with the Boston Dredging Company for dredging a widening of the channel on the southeasterly and easterly side from the outer basin to the inshore end, and enlarging the basin on the southerly side of the Town Landing, the widening of the channel to be 8 feet deep at mean low water and the addition to the basin 6 feet deep at mean low water. The contract prices are: for dredging channel and basin and disposing of the dredged material, including boulders 1 cubic yard or less in volume, $36\frac{1}{2}$ cents per cubic yard, scow measurement; for excavating boulders in excess of 1 cubic yard and not greater than 5 cubic yards in volume, and disposing of the same, \$12.50 per cubic yard. Work was completed Oct. 8, 1917, at a cost of \$8,425.85.

Amount expended during the year, \$8,899.84.

Total expenditure to Dec. 1, 1917, \$74,043.76.

SEA WALL AT FIRST CLIFF, SCITUATE.

On March 28, 1917, hearing was held on a petition of George G. Walbach for rip-rap protection at First Cliff, Scituate. After an examination and inspection of the locality, a contract was entered into on July 24, 1917, with Henry T. Cole for the placing of about 400 tons of stone rip-rap in front of the sea wall on the property of the petitioner, the contract price being \$3.50 per ton of 2,000 pounds for furnishing stone and depositing it in place. Work was completed Sept. 26, 1917, at a cost of \$1,656.62.

TAUNTON RIVER.

The recommendation that Taunton River from Fall River to Weir Village in Taunton be improved by providing a channel not less than 100 feet in width and not less than 18 feet deep at mean low water, with rectification of bends and a wider basin at the upper extremity of the channel, and that the

necessary work be carried out in co-operation with the Commonwealth of Massachusetts, the Federal government and municipalities, was set forth in the special report of the Board of Harbor and Land Commissioners printed as House Document No. 2138 of 1913. This was followed by the passage of chapter 716 of the Acts of 1914, allowing an expenditure of \$100,000 for the improvement for navigation of that part of the river named above, and for payment for land purchased or taken, for land damages and other rights, and for the privilege of depositing material on land and flats of and adjoining the river, "*provided*, that no part of this fund shall be available or expended until the congress of the United States shall approve a project, and make appropriation therefor, to improve that part of said river extending from Fall River to Weir Village in Taunton by the construction of a continuous channel therein."

In a report by Col. John Millis, Corps of Engineers, U. S. A., dated June 30, 1916, made in accordance with the provisions of the River and Harbor Act of March 4, 1913, it was stated that favorable action by Massachusetts with respect to a waterway between Taunton and Brockton, extended eventually either to North River or to Boston Harbor, following surveys, examinations and estimates of cost made by the Board of Harbor and Land Commissioners, would have an important bearing upon the question of the advisability of further improvement by the Federal government of this river from Fall River to Weir Village.

This report also set forth the following: —

Attention is invited to the fact that the harbor of Boston is almost unique among seacoast harbors of the United States of corresponding commercial importance in having no connection with the inland waterway system of the country; and to the very extensive connections that would be assured by completing the gap that now exists between the Taunton River and the North River and the extension of a branch to Brockton. Boston and other towns of New England would then be linked up with a very extensive inland waterways system.

Although the report of this officer was unfavorable, this Commission, acting upon the suggestion of Colonel Millis,

has supplemented the previous surveys and examinations made by the State and included in House Document No. 2126 of 1916, concerning a continuous waterway between Taunton River and Brockton, and has allotted \$9,516.04, from the funds at its disposal for river and harbor improvements, for further surveys and examinations of the territory between Taunton River and North River, and for estimates of the probable cost of a waterway from Taunton River to Massachusetts Bay by the construction of a canal connecting these two rivers and the canalization of various other rivers to Boston Harbor.

A special report concerning the Taunton River-Massachusetts Bay Canal will be submitted during the coming year.

The Commission recommends that the provision of law relating to tidal rivers be made applicable, so far as is necessary and desirable, to the nontidal part of the Taunton River, in order that regulation and control may be exercised by this Commission to the same extent as is provided in existing laws relating to the nontidal part of the Merrimack River. This recommendation has been embodied in a draft of a bill submitted.

WAQUOIT BAY.

Work under contract dated Aug. 2, 1916, with John R. Burke for the construction of a breakwater, stone wall and timber bulkhead at the entrance to this bay, in the towns of Falmouth and Mashpee, has been in progress during the year.

Amount expended during the year, \$10,629.88.

Total expenditure to Dec. 1, 1917, \$12,048.40.

WAREHAM RIVER.

Work under contract of June 28, 1916, with Charles M. Cole for dredging in this river was completed June 26, 1917. A channel was dredged about 90 feet wide and 12 feet deep at mean low water from the 12-foot contour opposite Cromeset Neck to the highway bridge at The Narrows, the head of navigation, at a cost of \$38,676.72. The town of Wareham made a contribution of \$5,000 towards the cost of this work.

Amount expended during the year, \$23,356.19.

Total expenditure to Dec. 1, 1917, \$42,349.27.

WARRENS COVE, PLYMOUTH.

Work under contract of June 15, 1916, with Cecil M. Leach for the construction of a concrete sea wall, with spur jetties, at Warrens Cove, Plymouth, was completed Aug. 1, 1917.

During construction of this wall a request was received from Mrs. Mary F. Stoddard for the extension of the wall built by the Commonwealth in 1915. Upon receipt of a contribution of \$536.50 from Mrs. Stoddard towards the estimated cost of this work, a contract was entered into on May 31, 1917, with James M. Downey for the construction of a concrete sea wall, with spur jetties, in extension of the existing wall southerly about 80.5 feet. The contract price for furnishing materials and building the wall and jetties was \$9.25 per cubic yard of concrete measured in place in the completed work. Work was completed Aug. 13, 1917, the total cost being \$975.88.

Amount expended during the year, \$12,402.11.

Total expenditure to Dec. 1, 1917, \$22,162.95.

WESTFIELD RIVER.

By chapter 128 of the Resolves of 1916 the Board of Harbor and Land Commissioners was authorized and directed to expend a sum not exceeding \$5,000 in placing riprap on the banks of the Westfield River, and in such other work for the protection, regulation and control of the river as the Board may deem necessary or advisable. A report of the engineer of the Commission concerning the necessary protective work, and a supplementary report suggesting a method to afford temporary relief, were printed in the report of the Commission for the year 1916. During that year the Commission was unable to find a contractor willing to undertake this work on account of the difficulty of securing labor. Late in 1917 the work was advertised, and after the receipt of proposals a contract was entered into on Oct. 16, 1917, with the Woronoco Construction Company for stone rip-rap work and the construction of spur jetties on the easterly bank of this river above the Old County bridge in Westfield, the contract price being \$3.98 per ton for furnishing the stone and depositing it in place. Work is in progress.

Amount expended during the year, \$26.53.

Total expenditure to Dec. 1, 1917, \$146.96.

WINTHROP SEA WALL.

On Dec. 26, 1916, the Commission entered into a contract with Owen Flannery for filling back of the sea wall in Winthrop built by the Commonwealth in 1916 along the shore of Broad Sound on the easterly side of Point Shirley. The contract price for furnishing and placing material in the space back of the wall and all incidental work was 50 cents per cubic yard. Work was completed during the year at a total cost of \$1,000.87.

In 1917 a northeasterly storm partially displaced the timber bulkhead at the southerly end of this wall, resulting in the washing out of some of the back filling for a distance of about 50 feet. The necessary repairs were made and the bulkhead strengthened, under an agreement with the William L. Miller Company, at a cost of \$107.27.

Amount expended during the year, \$1,184.72.

Total expenditure to Dec. 1, 1917, \$19,666.34.

MISCELLANEOUS MATTERS.

GREAT PONDS.

Jurisdiction over great ponds belonging to the Commonwealth, these ponds containing in their natural state 10 or more acres of land, was conferred upon the former Board of Harbor and Land Commissioners by chapter 318 of the Acts of 1888, and further authority given that Board by chapter 379 of the Acts of 1904 to sell and convey or lease any of the islands owned by the State in the great ponds, subject to the approval of the Governor and Council.

During the year the Commission has made examinations, held conferences or taken other proceedings relative to Center Lake, Becket; Dinah or Sears Pond, Yarmouth; Forge Pond, Westford; Lake Quinsigamond, Worcester; Lake Winthrop, Holliston; Long Pond, Harwich; Marys Pond, Plymouth; Pumps Pond, Andover; Pontoosuc Lake, Pittsfield; Sampsons Pond, Carver; Silver Lake, Pittsfield; Tisbury Great Pond, Tisbury; Wenham Lake, Beverly; West Pond, Bolton; Yokum Pond, Becket.

In its report for the year 1916 the Commission concurred in the views of its predecessors in authority with respect to the importance of many of the great ponds, and the necessity of additional surveys, maps, plans and other data relating to the same and to the islands therein.

The Commission, after a complete year of service, is fully convinced that a more comprehensive supervision, regulation and control is both necessary and desirable, and again recommends that it be given the necessary authority to make surveys, examinations, maps and plans of the great ponds of the Commonwealth containing 10 or more acres of land, also of the islands in said ponds, and to ascertain, so far as is practicable, the location, extent and description of the lands, shores and islands in said ponds, and that an appropriation therefor be made. This recommendation has been embodied in a draft of a bill submitted.

PROVINCE LANDS.

The territory known as the Province Lands, at Provincetown, belonging to the Commonwealth and over which the former Board of Harbor and Land Commissioners were given general care and supervision by the provisions of chapter 470 of the Acts of 1893, comprises about 3,290 acres lying northerly and westerly of a line described in that act. One purpose of this legislation was to provide for the reclamation of these lands by such methods as would "stop the shifting sands which move like drifting snow, and cover these barren sections with vegetable growth." Under the first appropriation of \$2,000 work was commenced and has been carried on to the present in accordance with the advice and experience of government experts and others in work of this character, with only slight modifications due to changing conditions. The problem was primarily to prevent movement of the sand, the first work being to plant the barren dunes with beach grass. Following this planting comes its reinforcement by transplanting certain trees and shrubs, Scotch broom, bayberry, Scotch, Australian and native pines having proved to be valuable for this purpose. In recent years the placing of brush over the exposed areas has been effective.

Special reference is made to the following annual reports of the Board of Harbor and Land Commissioners containing matters of especial interest concerning these lands: 1893, provisions of chapter 470 of the Acts of 1893, and effect of this statute; confirmatory deed of 1679 from the Indians, facsimile of the same, and a map showing bounds of the lands; 1894, description of the lands; 1895, reclamation of sand barrens bounding on the sea in other parts of the world; photographs of sand barrens and beach grass planted; letters from officials of the United States Department of Agriculture; 1896, report of landscape engineer; 1901, completion of the road to Race Point Light; 1913, repair of a road on the Province Lands.

During the year the work of reclamation has been carried on in accordance with the methods outlined. In the winter the chief work is the brushing of sand dunes. About 20 acres were so covered in the winter of 1916 and 1917. In March

the lands were thoroughly cleared of gypsy moths and all nests destroyed, so that no damage was suffered from these moths during the summer months. In April the work of transplanting was begun; 17,000 pines on the sod, 3,000 seedling pines and 8,000 Scotch broom were so treated. On account of the flooding of the bogs by severe rains some difficulty was encountered this year in securing pines for transplanting. In the fall the brushing of the dunes was continued and about 25 acres covered, making a total for the year of 45 acres. In addition, about 5 acres of bayberry have been transplanted.

A portion of a letter from H. R. Bristol, superintendent of woodlands of the Northern New York Development Company, shows the opinion of a man well qualified to speak concerning the subject and the importance and difficulty of the work done on the State's land at Provincetown. After acknowledging courtesies shown him by the superintendent of these lands he writes, "You are certainly to be congratulated on the rapidity with which your success has been attained. I do not know of any work of this character which has met with the success which you have met with on Cape Cod."

The sum of \$162.95 has been paid into the State treasury during the year, being the amount received from licenses issued to various parties to cultivate and pick cranberries on the bogs, and to mow meadow lands.

Amount expended during the year, \$3,722.13.

Total expenditure to Dec. 1, 1917, \$71,858.79.

MASSACHUSETTS ATLAS SHEETS AND TOWN BOUNDARY ATLASES.

Under authority of chapter 57, Resolves of 1890, chapter 42, Resolves of 1891, and chapter 360, Acts of 1900, 1,089 atlas sheets of the map of the Commonwealth and 2 town boundary atlases have been sold during the year ending Nov. 30, 1917, for which \$159.05 was received. Under the provisions of chapter 26, Resolves of 1909, there has been expended from this amount \$81.75 for the purchase from the United States Geological Survey of such sheets as may be required to keep in stock at all times copies of all the atlas sheets, leaving a balance of \$77.30, which has been forwarded to the Treasurer and Receiver-General, as required by the resolve.

One atlas has been delivered during the year under the authority of chapter 360, Acts of 1900, as amended by chapter 484, Acts of 1909.

The arrangement originally made with E. O. Cockayne, to print 108,000 copies of the 54 corrected sheets of the topographical map of Massachusetts, was transferred by agreement to the Meisel Lithograph Company to facilitate the execution of the work, and they have already printed the new edition of 19 corrected sheets. The work is now progressing at the rate of about 5 sheets per month, which is as fast as the transfers can be secured from Washington, corrections made and the edition printed. At this rate the entire issue of 54 sheets should be completed by July, 1918.

CAPE COD CANAL.

Under the provisions of chapter 448 of the Acts of 1899, incorporating the Boston, Cape Cod & New York Canal Company, the Board of Railroad Commissioners and the Board of Harbor and Land Commissioners were constituted a Joint Board for the purposes defined in said act. The Commission on Waterways and Public Lands, since Aug. 3, 1916, have, with the Public Service Commission, exercised the powers and duties of the Joint Board. John N. Cole was elected chairman of the Joint Board on Aug. 30, 1916.

The act of 1899 was amended by chapter 476 of the Acts of 1900. Additional legislation is contained in chapter 519 of the Acts of 1910, and in chapter 184 of the General Acts of 1917, Statements covering previous proceedings before the Board of Harbor and Land Commissioners and the Joint Board, and action taken on the several petitions presented, are contained in the reports of the Board of Harbor and Land Commissioners for the years 1907, pages 98 to 104; 1909, pages 17 to 19; 1910, pages 34 to 38; 1911, pages 65 to 68; 1912, pages 74 to 77; 1913, pages 160 to 162; 1914, pages 87 to 91; 1915, pages 106 to 108; and in the report of the Commission on Waterways and Public Lands for the year 1916, pages 99 to 101.

Under the contract of March 27, 1907, between the canal company and the Cape Cod Construction Company, approved by the Joint Board June 3, 1907, the construction company was

to receive \$11,990,000, payable, as to \$5,990,000 thereof, in shares of the capital stock of the canal company of the par value of \$100 each, and \$6,000,000 in bonds for building the canal.

In this connection the Joint Board has authorized under its orders, to Nov. 30, 1917, the issue by the canal company of 57,320 shares of stock of the par value of \$100 each, and \$5,740,000 in bonds. These orders were made in accordance with the requirements of chapter 448 of the Acts of 1899, as amended by chapter 476 of the Acts of 1900, and upon requisitions of the Cape Cod Construction Company to the canal company for the amounts of stock and bonds of the canal company under and in accordance with the above contract. There remained on Nov. 30, 1917, unissued, \$258,000 in stock and \$260,000 in bonds.

On Jan. 29, 1917, an order was issued allowing the canal company a further period to May 1, 1917, for completing the canal.

By order of April 27, 1917, the time was further extended to July 1, 1917.

The Joint Board has considered at its meetings during the year, two opinions of the Attorney-General, dated Sept. 19, 1916, and Nov. 15, 1917, respectively, requested by the Joint Board with respect to its powers and duties under the statutes relating to the canal company and under the contract between the canal company and the construction company approved by the Joint Board June 3, 1907.

It is expected that all matters remaining undecided on Dec. 1, 1917, will be finally passed upon early in the coming year.

A map of the canal is printed herewith.

Chapter 184 of the General Acts of 1917, relative to facilities for crossing the Cape Cod Canal, is as follows: —

SECTION 1. The members of the public service commission and of the commission on waterways and public lands, the county commissioners of the county of Barnstable, and the selectmen of the town of Bourne are hereby constituted a joint commission for carrying out the provisions of this act. The said joint commission, after such notice as it shall deem sufficient, and after hearing the parties interested, may order the discontinuance of the ferry across the Cape Cod canal now maintained at or near the village of Bournedale in the town of Bourne, and may amend, modify

or revoke any order made under the provisions of chapter four hundred and forty-eight of the acts of the year eighteen hundred and ninety-nine and acts in amendment thereof or in addition thereto, relative to the construction or maintenance of a bridge, ferry or tunnel across or under said canal at or near said village of Bournedale, and shall have power to impose such terms and conditions in respect to the time for taking effect of such order of discontinuance, or of such amendment, modification or revocation as, in its opinion, will adequately protect the public interests: *provided, however,* that the operation of said ferry at or near said village of Bournedale shall not be discontinued until a street railway has been constructed by the Plymouth and Sandwich Street Railway Company, or its successors and assigns, and is in operation along the north side of, and substantially parallel with, said canal, from a point at or near the bridge across said canal at or near the village of Sagamore in said Bourne to a point at or near the highway bridge across the canal at Bourne village, which, in the opinion of the said commission, will adequately serve the convenience of the public and of the residents of said village of Bournedale.

SECTION 2. The Boston, Cape Cod and New York Canal Company is hereby authorized to subscribe for, or to purchase, and to hold, shares of the Plymouth and Sandwich Street Railway Company, or of its successors and assigns, to an amount at their par or face value not exceeding thirty-five thousand dollars.

SECTION 3. After the operation of said ferry has been discontinued in accordance with the provisions of this act, said street railway shall be operated in such a manner as, in the opinion of said joint commission, will adequately serve the convenience of the public and of the residents of said village of Bournedale at all seasons of the year. The fare for the carriage of a passenger by said street railway from any point in the village of Bournedale to either of the termini hereinbefore named shall not exceed the sum of five cents. The superior court sitting in equity shall have jurisdiction to enforce the provisions of this section upon a petition filed in said court by the selectmen of the town of Bourne, or by ten taxable inhabitants of said town.

SECTION 4. So much of any act as is inconsistent herewith shall not apply to the provisions of this act.

SECTION 5. This act shall take effect upon its acceptance by the Plymouth and Sandwich Street Railway Company on behalf of itself, its successors and assigns. [*Approved April 16, 1917.*]

This act was accepted by the Plymouth and Sandwich Street Railway Company April 18, 1917. After organization of the Joint Commission, the presentation of a petition by the Plymouth & Sandwich Street Railway Company, public advertisement and due notice to parties interested, and a public hearing on Oct. 31, 1917, the following order was passed: —

The Commonwealth of Massachusetts

IN BOARD OF PUBLIC SERVICE COMMISSIONERS, COMMISSIONERS ON WATERWAYS AND PUBLIC LANDS, COUNTY COMMISSIONERS OF THE COUNTY OF BARNSTABLE, AND SELECTMEN OF THE TOWN OF BOURNE, SITTING AS A JOINT COMMISSION OCT. 31, 1917.

Petition of the Plymouth & Sandwich Street Railway Company requesting a hearing for the purpose of considering and determining what orders, if any, for the discontinuance of the ferry across the Cape Cod Canal now maintained at Bournedale, and what amendments, modifications or revocations of orders made under the provisions of chapter 448 of the Acts of 1899 and acts in amendment thereof and in addition thereto, relative to the construction or maintenance of a bridge, ferry, or tunnel across or under said canal at or near Bournedale, shall be made at this time and the terms and conditions thereof.

After public advertisement and due notice to parties interested and a public hearing, it appearing that the Plymouth & Sandwich Street Railway Company has accepted the provisions of chapter 184 of the General Acts of 1917, and is about to construct a street railway in accordance with the provisions of said act, the Joint Commission, acting under the provisions of chapter 184 of the General Acts of 1917, and in partial execution of the authority conferred upon it by such act, hereby determines that such street railway will adequately serve the convenience of the public and of the residents of the village of Bournedale, and that when it is completed and put in operation the ferry across the Cape Cod Canal, now maintained at or near the village of Bournedale, will no longer be required by public convenience and necessity; and

It is ordered, That the ferry across the Cape Cod Canal, now maintained at or near the village of Bournedale in the town of Bourne, be discontinued, and that the orders of the Joint Board, made under the provisions of chapter 448 of the Acts of 1899 and acts in amendment thereof or addition thereto, relative to a ferry across said canal at or near said village of Bournedale, dated April 28, 1914, and May 11, 1916, as extended by order of said Board dated June 9, 1916, be revoked; *provided, however*, that this order shall not go into force and effect until a street railway has been constructed by the Plymouth & Sandwich Street Railway Company, or its successors or assigns, along the north side of and substantially parallel with said canal from a point at or near the bridge across said canal at or near the village of Sagamore in said Bourne, to a point at or near the highway bridge across the canal at Bourne village, which in the opinion of

this Commission will adequately serve the convenience of the public and of the residents of said village of Bournedale, and is in operation, and that unless such street railway is completed and in operation before the first day of November, 1918, or before such subsequent date as this Commission may for good cause shown designate, this order shall be void and of no effect.

JOHN N. COLE,

Chairman.

FREDERICK J. MACLEOD,

EVERETT E. STONE,

JOHN F. MEANEY,

JOSEPH B. EASTMAN,

CHARLES A. RUSSELL,

Public Service Commission.

JESSE B. BAXTER,

WILLIAM S. McNARY,

Commission on Waterways and Public Lands.

BENJAMIN F. BOURNE,

JOSHUA A. NICKERSON,

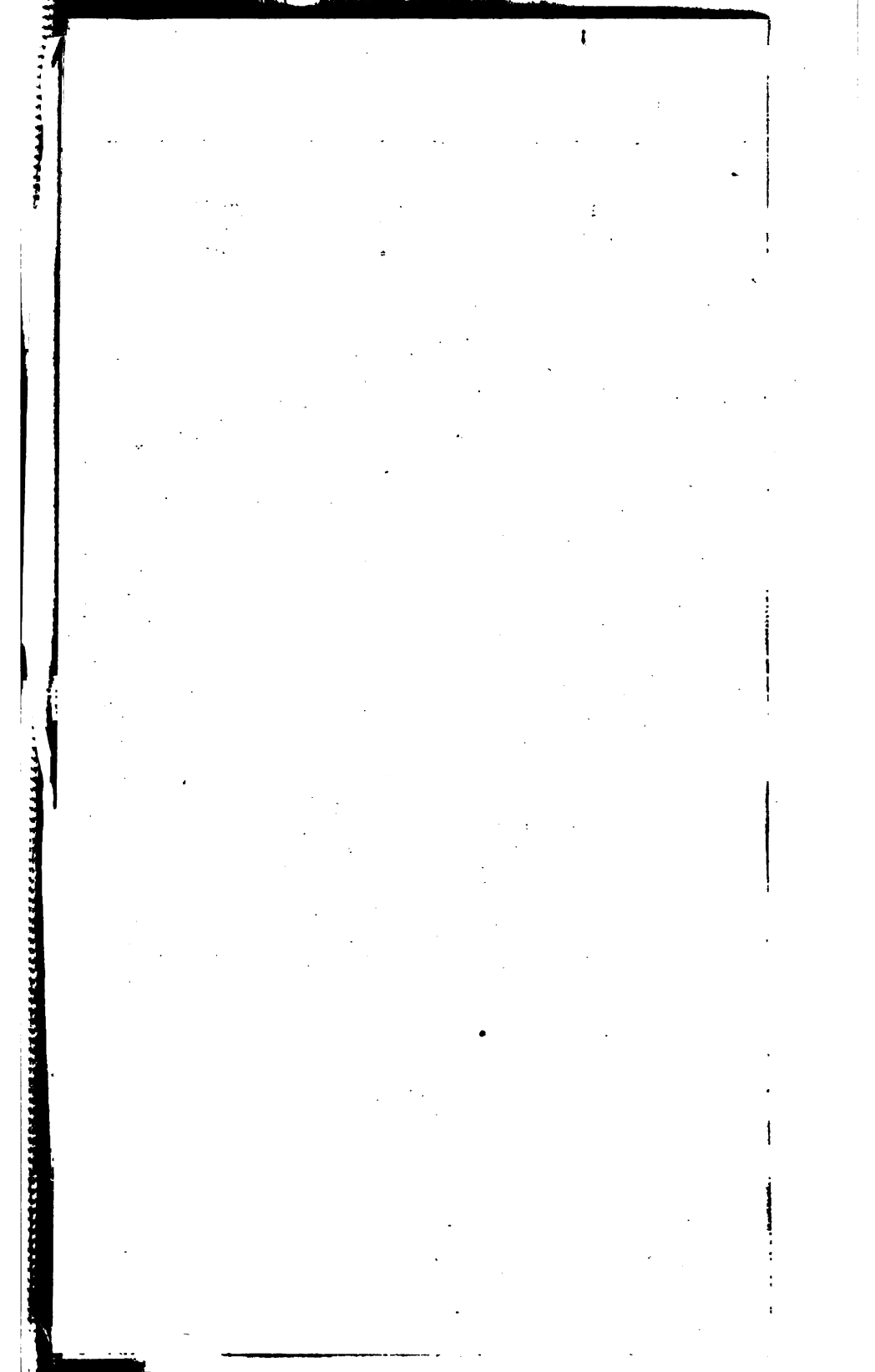
FRANK G. THACHER,

County Commissioners of the County of Barnstable.

GEORGE L. ATHERTON,

CHARLES H. PHINNEY,

Selectmen of the Town of Bourne.



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LICENSES GRANTED DURING THE YEAR.

Nos.

33. Petition of the Nantasket Beach Steamboat Company for license to extend and enlarge its pier, known as Nantasket Pier, build walls, fill solid, dredge channel and docks and construct dolphins in Weir River and Weir River Harbor, in Hull. Granted Dec. 4, 1916.
34. Petition of the Nantasket Beach Steamboat Company for license to extend its present pier, known as Pemberton Pier, on piles, to build retaining walls and to fill solid in Hingham Bay, in Hull. Granted Dec. 4, 1916.
35. Petition of the French Telegraphic Cables Company for license to lay and maintain two telegraphic cables in and over the tide-waters of Town Cove and Nauset Harbor, in Orleans and Eastham. Granted Dec. 11, 1916.
36. Petition of the Salem Electric Lighting Company for license to drive sheet piling and to dredge in South River, in Salem. Granted Dec. 28, 1916.
37. Petition of the Bertelsen & Petersen Engineering Company for license to build two marine railways, to extend a wharf and to dredge in Boston Harbor at East Boston. Granted Jan. 12, 1917.
38. Petition of the Nantasket Beach Steamboat Company for license to extend and enlarge its pier, known as Nantasket Pier, build walls, fill solid, dredge channel and docks and construct dolphins in Weir River and Weir River Harbor, in Hull. Granted Jan. 20, 1917.
39. Petition of the Boston & Albany Railroad Company, the New York Central Railroad Company, lessee, for license to remove the present steel draw span and portion of the timber trestle; build new masonry piers, new steel draw span; brace and strengthen remaining portion of trestle where its tracks cross, by means of a timber trestle and steel draw span, on Chelsea Creek, in Boston and Chelsea. Granted Jan. 25, 1917.
40. Petition of the Bay State Street Railway Company for license to reconstruct and partially fill its pile bridge across Broad Cove on Taunton River, in Dighton and Somerset. Granted Feb. 14, 1917.
41. Petition of the Metropolitan Park Commission for license to fill solid in Lynn Harbor adjacent to the bulkhead at the Nahant Beach Parkway, in Lynn and Nahant. Granted Feb. 14, 1917.
42. Petition of the American Agricultural Chemical Company for license to construct a wharf and buildings and to dredge in Mystic River, in Boston. Granted Feb. 20, 1917.

Nos.

43. Petition of Edith Andrew, trustee, for license to maintain a pile wharf in Boston Harbor at Peddocks Island, in Hull, as now built, also four piles driven beyond the outer end of said wharf. Granted March 1, 1917.
44. Petition of Breckinridge Long and Christine A. B. Long for license to build a boat landing in Nantucket Sound, in Nantucket. Granted March 1, 1917.
45. Petition of the Weymouth Light and Power Company for license to erect poles and to string wires in and over Weir River, in Hingham and Hull. Granted March 1, 1917.
46. Petition of the Marine Biological Laboratory for license to build a marine railway, a boat shed and two float stages in Eel Pond at Woods Hole, in Falmouth. Granted March 1, 1917.
47. Petition of the Boston Consolidated Gas Company for license to construct and maintain a siphon for a 12-inch gas pipe in, over and under Neponset River at the draw way in the proposed Neponset bridge, in Boston and Quincy. Granted March 9, 1917.
48. Petition of the Island Service Company for license to rebuild its wharf and to dredge in Nantucket Harbor, in Nantucket. Granted March 22, 1917.
49. Petition of the Edison Electric Illuminating Company of Boston for license to lay a cable in and under Charles River northerly of and near Western Avenue bridge, in Boston and Watertown. Granted March 22, 1917.
50. Petition of the city of Haverhill for license to build a wall and fill solid on Merrimack River at City Landing No. 8, in Haverhill. Granted March 23, 1917.
51. Petition of the Mexican Petroleum Corporation for license to build a bulkhead and fill solid in Chelsea Creek and Bass Creek, in Chelsea. Granted March 23, 1917.
52. Petition of the Bar Neck Corporation for license to build a pile wharf in Woods Hole Great Harbor at Woods Hole, in Falmouth. Granted March 23, 1917.
53. Petition of Elizabeth R. Holmes for license to build a bulkhead and pile platform and to fill solid in Acushnet River, in New Bedford. Granted March 23, 1917.
54. Petition of Edmund Wood and George R. Wood for license to extend their wharf on piles in Acushnet River, in New Bedford. Granted March 23, 1917.
55. Petition of Arthur H. Lamborn for license to build a wharf on piles in Lake Anthony, in Oak Bluffs. Granted March 23, 1917.
56. Petition of the Crane Company for license to build a sea wall and fill solid in Fort Point Channel, in Boston. Granted March 26, 1917.
57. Petition of William P. Laytham for license to build a pile pier in Lake Anthony, in Oak Bluffs. Granted March 26, 1917.

Nos.

58. Petition of the Chappaquiddick Improvement Company for license to build a pile pier in Edgartown Harbor at Chappaquiddick, in Edgartown. Granted March 26, 1917.
60. Petition of the Railroad Wharf and Storage Company for license to widen and extend its wharf on piles and to dredge in Mystic River, in Boston. Granted April 5, 1917.
61. Petition of Bessie F. Tucker for license to build dikes, fill solid and to excavate in Manchester Harbor, in Manchester. Granted April 5, 1917.
62. Petition of May K. Safford for license to build dikes and to fill solid in Manchester Harbor, in Manchester. Granted April 5, 1917.
63. Petition of the city of Boston, by the Commissioner of Public Works, for license to construct a water pipe siphon and pipe box trestle, connecting with the existing pipe box trestle, in, over and under Neponset River at and near the proposed Neponset bridge, in Boston and Quincy. Granted April 5, 1917.
64. Petition of the Old Colony Railroad Company for license to extend and widen its wharf in New Bedford Harbor, in New Bedford. Granted April 5, 1917.
65. Petition of the Hanson Cedar Company for license to maintain an existing dam and flume, to increase the height and width of said dam, build another flume therein, and draw water from Herring Brook and East Monponsett Pond and West Monponsett Pond, in Halifax and Hanson. Granted April 12, 1917.
66. Petition of the Merchants Terminal Company for license to build pile and timber bulkheads and a wall, to fill solid and to dredge on Mystic River, in Boston. Granted April 12, 1917.
67. Petition of the Metropolitan Coal Company for license to build a sea wall and fill solid on Mystic River, in Chelsea. Granted April 12, 1917.
68. Petition of Homer L. Gibbs for license to build and maintain structures and draw water from Sampsons Pond, in Carver. Granted April 12, 1917.
69. Petition of Eliza A. Bowers for license to build and maintain structures and draw water from Sampsons Pond, in Carver. Granted April 12, 1917.
70. Petition of the Bay State Street Railway Company for license to lay cables in and under Weymouth Fore River at Weymouth Landing bridge, in Quincy and Braintree. Granted April 12, 1917.
71. Petition of William Enos for license to extend his wharf, on piles, in Provincetown Harbor, in Provincetown. Granted April 12, 1917.
72. Petition of the Old Colony Railroad Company and the New York, New Haven & Hartford Railroad Company for license to fill solid in South Bay, in Boston. Granted April 18, 1917.

Nos.

73. Petition of Roswell C. Downer for license to build a stone break-water and a landing stage in Wild Harbor, in Falmouth. Granted April 18, 1917.
74. Petition of Robert E. Sproule for license to construct a swimming pool in Boston Harbor, in Winthrop. Granted April 18, 1917.
75. Petition of the Revere Sugar Refinery for license to build two pile wharves on Mystic River, in Boston. Granted April 18, 1917.
76. Petition of Harold C. Keith for license to build a pile pier and float stage in Quissett Harbor, in Falmouth. Granted April 24, 1917.
77. Petition of Edward P. Washburn for license to build a pile pier and float stage in Onset Bay at Onset, in Wareham. Granted April 24, 1917.
78. Petition of the Kilburn Mill for license to build a sea wall and fill solid in Clarks Cove, in New Bedford. Granted April 25, 1917.
79. Petition of Frederick P. Royce, John K. Burgess and George T. Rice, trustees of the Tisbury Pond Club, for license to excavate a ditch connecting Long Cove and Tisbury Great Pond, in West Tisbury, and to build a bulkhead and gate in said ditch near Long Cove for the purpose of changing and regulating the height of water in Long Cove. Granted April 26, 1917.
80. Petition of the Turners Falls Power and Electric Company for license to erect wires for conducting electricity over Connecticut River, in Agawam and Springfield. Granted May 10, 1917.
81. Petition of the Metropolitan Park Commission for approval of plans for fender piers, fender guards, five temporary pile dolphins and additional dredging at and near Neponset bridge across Neponset River, in Boston and Quincy, as authorized by chapter 300 of the General Acts of 1915. Granted May 15, 1917.
82. Petition of the city of Boston, by its commissioner of public works, for license to drive piles in extension of the middle pier of North Ferry in Boston Harbor, in Boston. Granted May 15, 1917.
83. Petition of John B. Pilling for license to build a boat landing and a float stage in Lynn Harbor, in Nahant. Granted May 15, 1917.
84. Petition of George W. Mitton for license to build a pile pier, a portion of a bath house and a float stage in Marion Harbor, in Marion. Granted May 15, 1917.
85. Petition of the Boston Elevated Railway Company for license to build a bulkhead and fill solid on Mystic River, in Boston. Granted May 22, 1917.
86. Petition of the Charlestown Gas and Electric Company for license to build a bulkhead and fill solid on Mystic River, in Boston. Granted May 22, 1917.
87. Petition of Dexter H. Craig for license to build a bulkhead, fill solid and extend his wharf on piles in Plymouth Harbor, in Plymouth. Granted May 22, 1917.

Nos.

88. Petition of the Revere Sugar Refinery for license to build a wall, pile platforms and a pile wharf and to fill solid on Mystic River, in Boston. Granted June 7, 1917.
89. Petition of the Metropolitan Park Commission for approval of plans for the construction of an embankment and driveway in and over a part of Tenean Creek and Barque Warwick Creek, in Boston, as authorized by chapter 699 of the Acts of 1912. Granted June 7, 1917.
90. Petition of the Fore River Shipbuilding Corporation for license to build launchways, on piles, to excavate at the site of said proposed ways, and to fill solid, in Weymouth Fore River and Hayward's Creek, in Quincy. Granted June 7, 1917.
91. Petition of Julius C. Collmann for license to build a float on Connecticut River, in West Springfield. Granted June 7, 1917.
92. Petition of the city of Salem for license to fill solid in Collins Cove, adjoining Collins Street, in Salem. Granted June 7, 1917.
93. Petition of the city of Salem for license to fill solid in Collins Cove adjoining Almshouse Road and Fort Avenue, in Salem. Granted June 7, 1917.
94. Petition of the county commissioners of Plymouth County for approval of plans for the reconstruction of Union bridge, so called, over North River, in Marshfield and Norwell, as authorized by chapter 68 of the General Acts of 1917. Granted June 7, 1917.
95. Petition of Timothy J. Fitzgerald for license to locate a float in Lake Quinsigamond easterly of Lake Avenue and near the northerly side line of Anna Street extended, in Worcester. Granted June 14, 1917.
96. Petition of Clarence E. Day for license to build a float on Connecticut River, in West Springfield. Granted June 14, 1917.
97. Petition of E. Copeland Lang for license to extend a pier and to locate a float stage in Little Harbor on the northerly side of Gerry Island, in Marblehead. Granted June 14, 1917.
98. Petition of George W. Mitton for license to build a boathouse in Marion Harbor, in Marion. Granted June 14, 1917.
99. Petition of the New Bedford Gas and Edison Light Company for license to extend its wharf by building a wall and bulkhead and filling solid on Acushnet River, in New Bedford. Granted June 14, 1917.
100. Petition of the Salem Electric Lighting Company for license to remove and rebuild a portion of the pile platform at the bridge on Congress Street extension, to relocate a pile dolphin and to dredge in South River, in Salem. Granted June 19, 1917.
101. Petition of the town of Hull, by its electric light department, for license to lay a submarine cable in Hingham Bay from Whitehead, in Hull, to Bumpkin Island, in Hingham. Granted June 29, 1917.

Nos.

102. Petition of the George Lawley & Son Corporation for license to build a pile structure and launching ways on Neponset River at Neponset, in Boston. Granted July 10, 1917.
103. Petition of the King Cove Boat Club for license to build a pile wharf and float stage on Weymouth Fore River, in Weymouth. Granted July 10, 1917.
104. Petition of the Fore River Shipbuilding Corporation for license to fill solid and to dredge in Hayward's Creek and Weymouth Fore River, in Quincy and Braintree. Granted July 12, 1917.
105. Petition of the Fall River Electric Light Company for license to drive piles, to build concrete foundations or piers, and erect towers and string wires for the transmission of electricity, in and over Taunton Great River, in Fall River and Somerset. Granted July 26, 1917.
106. Petition of the Turners Falls Power and Electric Company for license to fill solid, dredge and build conduits to convey water for condensation purposes in and under Connecticut River, in Chicopee. Granted July 26, 1917.
107. Petition of the Pierce Manufacturing Corporation for license to build a bulkhead and flumes on Acushnet River, in New Bedford. Granted July 26, 1917.
108. Petition of the Atlantic, Gulf & Pacific Company for license to construct dikes and fill solid in tidewater flowing into Chelsea Creek and Bass Creek, in Chelsea. Granted July 26, 1917.
109. Petition of the town of Wareham for license to build and maintain a public wharf, as authorized by chapter 283 of the Special Acts of 1917, and to dredge in Onset Bay at Onset, in Wareham. Granted July 31, 1917.
110. Petition of the Andrew Kerr Company for license to build a pile wharf in Plymouth Harbor, in Plymouth. Granted Aug. 6, 1917.
111. Petition of the Merchants Terminal Company for license to fill solid, build a pile wharf and to dredge on Mystic River, in Boston. Granted Aug. 9, 1917.
112. Petition of the Burgess Company for license to construct and maintain a runway in Little Harbor, in Marblehead. Granted Aug. 16, 1917.
113. Petition of the Pairpoint Corporation for license to build a bulkhead and pile wharf and fill solid in Acushnet River, in New Bedford. Granted Aug. 21, 1917.
114. Petition of the Bar Neck Corporation for license to build a pile dolphin in Woods Hole Great Harbor at Woods Hole, in Falmouth. Granted Aug. 21, 1917.
115. Petition of Lindley W. Mayhew for license to build a marine railway in Vineyard Haven Harbor, in Tisbury. Granted Aug. 24, 1917.

Nos.

116. Petition of Seward Prosser for license to build a wharf and float stage in Buzzards Bay at Woods Hole, in Falmouth. Granted Sept. 4, 1917.
117. Petition of the Burgess Company for license to extend its buildings over tidewater by building a concrete sea wall and filling solid in Marblehead Harbor, in Marblehead. Granted Sept. 20, 1917.
118. Petition of the Edison Electric Illuminating Company of Boston for license to lay a cable in and under Charles River at and near Western Avenue bridge, in Boston and Watertown. Granted Sept. 20, 1917.
119. Petition of the city of Boston, by its board of park and recreation commissioners, for license to build a sea wall and fill solid in the south channel of Mystic River, in Boston. Granted Sept. 20, 1917.
120. Petition of the city of Boston, by its infirmary department, for license to lay a submarine telephone cable in Boston Harbor from Moon Head to the westerly end of Long Island, in Boston. Granted Sept. 20, 1917.
121. Petition of Daisy M. Headley for license to build a wharf and to lay a water pipe in Little Bay, in Fairhaven. Granted Sept. 20, 1917.
122. Petition of the New England Telephone and Telegraph Company of Massachusetts for license to lay a cable in Boston Harbor across Whitehead Flats, so called, from Nantasket Point to Bumpkin Island, in Hull and Hingham. Granted Sept. 20, 1917.
123. Petition of the Burrage Hospital Association for license to maintain a telephone cable and a 6-inch water pipe in and under Hull Bay, extending from Nantasket Point to Bumpkin Island, in Hull and Hingham. Granted Sept. 20, 1917.
124. Petition of the Halifax Garden Company for license to construct and maintain a pumping station and a flume, to excavate a canal and ditch, and to draw water from East Monponsett Pond, in Halifax. Granted Sept. 20, 1917.
125. Petition of Franklin E. Smith and Horace B. Maglathlin for license to excavate in West Monponsett Pond, to excavate ditches, construct flumes and dikes, build pumping stations, and draw water from said pond, in Halifax. Granted Sept. 20, 1917.
126. Petition of the New York, New Haven & Hartford Railroad Company for license to fill solid in South Bay, in Boston. Granted Sept. 25, 1917.
127. Petition of the town of Wareham for license to build and maintain a public wharf as authorized by chapter 283 of the Special Acts of 1917, on piles, in Onset Bay, at Onset, in Wareham. Granted Sept. 25, 1917.
128. Petition of the Boston Elevated Railway Company for license to dump snow and ice into tidewater, in Boston, Cambridge and Chelsea. Granted Oct. 2, 1917.

Nos.

129. Petition of the American Bridge Company for license to build temporary falsework necessary for the erection of a new bridge of the Boston & Maine Railroad across Connecticut River, in Deerfield and Montague. Granted Oct. 2, 1917.
130. Petition of the Suburban Gas and Electric Company for license to lay a submarine cable in Chelsea Creek for transmitting electric current from its works in Revere to a point within the lines of location of the Boston & Maine Railroad, in Chelsea. Granted Oct. 2, 1917.
131. Petition of Loring Washburn, commander of the New Bedford section of the second naval district, for license to build a pile and timber bulkhead and pile spurs in New Bedford Harbor, in Fairhaven. Granted Oct. 9, 1917.
132. Petition of Eugene H. Brann for license to build a pile wharf, pile dolphins and a float stage in Broad Sound, in Nahant. Granted Oct. 9, 1917.
133. Petition of Mary S. Bent for license to build a wall and fill solid on Annisquam River, in Gloucester. Granted Oct. 9, 1917.
134. Petition of Hattie F. Hornblower for license to excavate a channel to divert the channel of Eel River from its present location, and to place the excavated material upon the adjoining marshes, in Plymouth. Granted Oct. 9, 1917.
135. Petition of the city of Boston, by its commissioner of public works, for license to dump snow and ice into tidewaters in Boston Harbor, in Boston. Granted Oct. 9, 1917.
136. Petition of Marietta Ford Russell for license to build and maintain a pier, supported by iron posts, and a float stage in Marblehead Harbor, in Marblehead. Granted Oct. 16, 1917.
137. Petition of Annie W. McKennon for license to build a pile wharf in Provincetown Harbor, in Provincetown. Granted Oct. 23, 1917.
138. Petition of the Edison Electric Illuminating Company of Boston for license to lay four cables in Neponset River between Commercial Point and Squantum, in Boston and Quincy. Granted Oct. 30, 1917.
139. Petition of the Navy Department of the United States for license to build a pile wharf in Dorchester Bay at Squantum, in Quincy. Granted Oct. 30, 1917.
140. Petition of George Tousey for license to build a bulkhead and pile wharf, to fill solid and dredge in the south channel of Mystic River, in Boston. Granted Oct. 30, 1917.
141. Petition of the Sears-Cook Corporation for license to build a bulkhead and pile wharf, to fill solid and dredge in the south channel of Mystic River, in Boston. Granted Oct. 30, 1917.
142. Petition of John R. McGinley and Jennie A. McGinley for license to build a sea wall and fill solid in Manchester Harbor, in Manchester. Granted Oct. 30, 1917.

Nos.

143. Petition of the Springfield Gas Light Company for license to maintain a pile pier on Connecticut River, in Agawam. Granted Oct. 30, 1917.
144. Petition of Clarence C. Puffer and Charles P. Perkins for license to build concrete spur jetties in Buzzards Bay at Onset Island, in Wareham. Granted Oct. 30, 1917.
145. Petition of Clifford S. Kilburn for license to build a marine railway, pile and timber bulkheads, a pile platform, a sea wall, and to fill solid and dredge in New Bedford Harbor at Clarks Point, in New Bedford. Granted Nov. 7, 1917.
146. Petition of Henry H. Fay and Sarah B. Fay for license to construct three stone piers and to drive piles for the purpose of erecting and maintaining a wooden building in and over Eel Pond at Woods Hole, in Falmouth. Granted Nov. 7, 1917.
147. Petition of the East Boston Company for license to fill solid and maintain filling already done in Chelsea Creek, in Boston. Granted Nov. 13, 1917.
148. Petition of the Boston Development and Sanitary Company for license to build a temporary trestle in and over Chelsea Creek, in Boston. Granted Nov. 13, 1917.
149. Petition of the Dorchester Trust Company for license to rebuild its bulkhead and wharf on piles in South Bay, in Boston. Granted Nov. 23, 1917.

MISCELLANEOUS PERMITS GRANTED AND FISH WEIR PERMITS
APPROVED DURING THE YEAR.

- CHARLES F. TARR, to construct and maintain a floating trap on "Dry Breakers" off Baker's Island, Salem. Approval of permit issued July 27, 1916, by city council of Salem. Granted Dec. 11, 1916.
- CITY OF BOSTON, to dredge an area between Savin Hill and Commercial Point, the excavated material to be used in filling area of Savin Hill playground. Granted Dec. 11, 1916.
- WILLIAM P. WHARTON, to use and occupy Grassy Island in Baddacook Pond, Groton. Granted Dec. 11, 1916.
- ISAAC BLAIR & Co., INC., to dump snow into tidewater off Dover Street bridge, Boston. Granted Dec. 22, 1916.
- J. S. PACKARD DREDGING COMPANY, to dredge not exceeding 15,000 cubic yards of gravel from Weymouth Back River. Granted Dec. 26, 1916.
- J. S. PACKARD DREDGING COMPANY, to dredge not exceeding 15,000 cubic yards of gravel from Weymouth Fore River. Granted Dec. 26, 1916.
- CITY OF BOSTON, to dump snow and ice into tidewater at property of the Commonwealth known as the Eastern Railroad Pier, adjoining Lewis Street, East Boston. Granted Dec. 27, 1916.

BOSTON YACHT CLUB, to dredge an area in Dorchester Bay in front of its premises bordering on the strandway at City Point, Boston. Granted Jan. 10, 1917.

AMERICAN SUGAR REFINING COMPANY, to dredge its dock, on Fort Point Channel, Boston, the excavated material to be deposited at the Commonwealth's receiving station at East Boston. Granted Jan. 17, 1917.

EASTERN STEAMSHIP CORPORATION, to dredge its berth on the south side of Union Wharf, Boston, the excavated material to be deposited at the Commonwealth's receiving station at East Boston. Granted Jan. 17, 1917.

UNITED STATES, to dump at the receiving station on East Boston Flats 25,000 cubic yards of material dredged from the 35-foot channel in Boston Harbor. Granted Jan. 17, 1917.

ATLANTIC WORKS, to dredge about 5,000 cubic yards of material from the dock between its piers Nos. 3 and 4 at its works in East Boston, the excavated material to be deposited at the Commonwealth's receiving station at East Boston. Granted Jan. 17, 1917.

W. F. KEARNS COMPANY, to deposit in extension of Northern Avenue, westerly of wharf formerly leased to the Staples Coal Company, material excavated by said company. Granted Jan. 17, 1917.

W. F. KEARNS COMPANY, to use a lot of land on the Commonwealth Flats at South Boston for receiving and storing building materials; and for this purpose to maintain and operate across said lot a railroad track and to connect the same with a track now maintained and operated by Tarrant P. King. Granted Jan. 17, 1917.

GEORGE HERVEY LUCE and NORMAN G. BENSON, co-partners under the name of Luce & Benson, to construct and maintain a fish trap in Vineyard Sound, west of the point of Cedar Tree Neck, West Tisbury. Approval of permit issued Jan. 6, 1917, by selectmen of West Tisbury. Granted Jan. 19, 1917.

GEORGE HERVEY LUCE and NORMAN G. BENSON, co-partners under the name of Luce & Benson, to construct and maintain a fish trap in Vineyard Sound, west of the Iron Ore Brook, West Tisbury. Approval of permit issued Jan. 6, 1917, by selectmen of West Tisbury. Granted Jan. 19, 1917.

UNITED STATES, to dump at receiving basin on the East Boston flats 100,000 cubic yards of material dredged from the 35-foot channel in Boston Harbor. Granted Jan. 19, 1917.

NEW ENGLAND GAS AND COKE COMPANY, to redredge the area in front of its wharf in Island End River, Everett, the excavated material to be deposited at the receiving station on the East Boston flats. Granted Jan. 19, 1917.

POCAHONTAS FUEL COMPANY, to dredge berth in Acushnet River, New Bedford. Granted Jan. 19, 1917.

- BENJAMIN F. RICH**, to construct and maintain a fish weir in the tide-waters of Chatham. Approval of permit issued Jan. 15, 1917, by selectmen of Chatham. Granted Jan. 23, 1917.
- DORCHESTER YACHT CLUB**, to dredge a channel from the existing channel on the northerly side of Commercial Point to the floats of said yacht club. Granted Jan. 23, 1917.
- ISAAC E. CHASE**, to construct a flounder trap in the waters of Pleasant Bay, Orleans. Approval of permit issued Jan. 15, 1917, by selectmen of Orleans. Granted Jan. 30, 1917.
- J. S. PACKARD DREDGING COMPANY**, to dredge 15,000 cubic yards of material from Weymouth Back River. Granted Jan. 30, 1917.
- RICHARD T. GREEN COMPANY and J. S. PACKARD DREDGING COMPANY**, to dredge 10,000 cubic yards of material at the premises of the Richard T. Green Company on Chelsea Creek, Chelsea. Granted Feb. 6, 1917.
- SALEM ELECTRIC LIGHTING COMPANY**, to deposit material dredged at South River, Salem, at dumping ground at Hardy's Rock Beacon inside Baker's Island in Salem Harbor, and also in Salem Harbor within a triangle formed by the beacon on Halfway Rock, Middle Breakers and Southeast Breakers. Granted Feb. 6, 1917.
- BAY STATE DREDGING AND CONTRACTING COMPANY**, to dredge 5,000 cubic yards of gravel from an area in Chelsea Creek. Granted Feb. 8, 1917.
- CITY OF NEW BEDFORD**, to dredge North Street Dock, so called, in Acushnet River, New Bedford. Granted Feb. 8, 1917.
- JOHN DUFF**, to dredge approximately 700 cubic yards of material in Acushnet River, New Bedford. Granted Feb. 20, 1917.
- MARYLAND DREDGING AND CONTRACTING COMPANY**, to dump dredged material alongside wharf of Standard Oil Company, of New York, on Chelsea Creek, East Boston. Granted Feb. 20, 1917.
- GEORGE W. CROWELL and GEORGE I. CROWELL**, to construct and maintain a fish weir in Chatham South Bay, Chatham. Approval of permit issued Jan. 15, 1917, by selectmen of Chatham. Granted Feb. 20, 1917.
- GEORGE W. CROWELL and EDWARD A. CROWELL**, to construct and maintain a fish weir in Chatham South Bay, Chatham. Approval of permit issued Jan. 24, 1917, by selectmen of Chatham. Granted Feb. 20, 1917.
- THOMAS W. HOLWAY**, to construct and maintain a fish weir in the tide-waters of Chatham. Approval of permit issued Feb. 7, 1917, by selectmen of Chatham. Granted Feb. 20, 1917.
- EDMUND D. KENDRICK and EDMUND S. KENDRICK**, to construct and maintain a fish weir on the south side of Strong Island, Chatham. Approval of permit issued Feb. 7, 1917, by selectmen of Chatham. Granted Feb. 20, 1917.
- ELMER F. MAYO**, to construct and maintain a fish weir in the tidewaters of Chatham. Approval of permit issued Feb. 7, 1917, by selectmen of Chatham. Granted Feb. 20, 1917.

- WILLIAM H. NEWELL, to construct and maintain a fish weir in the tide-waters of Yarmouth. Approval of permit issued Dec. 30, 1916, by selectmen of Yarmouth. Granted Feb. 20, 1917.
- L. PICKERT FISH COMPANY, to construct and maintain three fish traps in the tidewaters of Plymouth. Approval of permit issued Feb. 5, 1917, by selectmen of Plymouth. Granted Feb. 20, 1917.
- CHARLES R. RICHARDSON, to erect and maintain a flounder trap in Town Cove and on the southerly side of Hopkins Island, Orleans. Approval of permit issued Feb. 1, 1917, by selectmen of Orleans. Granted Feb. 20, 1917.
- LEWIS WHARF COMPANY and COMMERCIAL WHARF COMPANY, to dredge between Lewis and Commercial wharves, Boston. Granted Feb. 28, 1917.
- ZENAS H. BAKER, to construct and maintain a fish weir in the tidewaters of Dennis. Approval of permit issued Feb. 12, 1917, by selectmen of Dennis. Granted Feb. 28, 1917.
- POCAHONTAS FUEL COMPANY, extension of time under permit issued Jan. 19, 1917. Granted Feb. 28, 1917.
- EDISON ELECTRIC ILLUMINATING COMPANY of Boston, to dredge an area at its premises on the southerly side of the Reserved Channel, South Boston. Granted March 8, 1917.
- THE MERCHANTS TERMINAL COMPANY, to deposit material in Mystic River at its premises adjoining Medford Street, Boston, and inside the United States bulkhead line. Granted March 8, 1917.
- FREDERIC D. FISK, JOSEPH SARGENT and DANIEL R. SORTWELL, TRUSTEES, to dredge not exceeding 150,000 cubic yards of material from their flats in Charles River Basin. Granted March 8, 1917.
- CHARLES B. LONG, to construct and maintain a fish weir in Nantucket Sound. Approval of permit issued Feb. 16, 1917, by selectmen of Dennis. Granted March 8, 1917.
- STORY FISH COMPANY, to construct three fish traps in the tidewaters of Rockport. Approval of permit issued Feb. 24, 1917, by selectmen of Rockport. Granted March 8, 1917.
- BOSTON, CAPE COD & NEW YORK CANAL COMPANY, to dump approximately 30,000 cubic yards of material in Buzzards Bay east and south-east of Abiel's Ledge. Granted March 9, 1917.
- MEXICAN PETROLEUM CORPORATION, to dredge in Chelsea Creek, East Boston. Granted March 9, 1917.
- METROPOLITAN COAL COMPANY, to dredge the berth in its dock in Chelsea Creek and in the dock at the southerly end of its premises, Chelsea. Granted March 14, 1917.
- H. P. CONVERSE & Co., lessees of property in Charlestown, to deposit thereon below high-water mark material taken from excavations on the premises of the Revere Sugar Refinery. Granted March 14, 1917.
- WAMUTTA MILLS, to dredge in Acushnet River in the city of New Bedford. Granted March 15, 1917.

- FREDERICK W. BAKER**, to construct and maintain a fish weir in the tide-waters of Chatham. Approval of permit issued March 19, 1917, by selectmen of Chatham. Granted March 23, 1917.
- BARTLETT E. BASSETT**, to construct and maintain a fish weir on the south side of Crows Pond, Chatham. Approval of permit issued March 5, 1917, by selectmen of Chatham. Granted March 23, 1917.
- A. B. COBURN**, to construct and maintain a fish weir in Cape Cod Bay about $1\frac{1}{2}$ miles east of the East Dennis breakwater. Approval of permit issued Jan. 1, 1917, by selectmen of Dennis. Granted March 23, 1917.
- A. B. COBURN**, to construct and maintain a fish weir in Cape Cod Bay about one-quarter of a mile west of the East Dennis breakwater. Approval of permit issued Jan. 1, 1917, by selectmen of Dennis. Granted March 23, 1917.
- A. B. COBURN**, to construct and maintain a fish weir in Cape Cod Bay about one-quarter of a mile east of the East Dennis breakwater. Approval of permit issued Jan. 1, 1917, by selectmen of Dennis. Granted March 23, 1917.
- A. B. COBURN**, to construct and maintain a fish weir in Cape Cod Bay about 1 mile west of the East Dennis breakwater. Approval of permit issued Jan. 1, 1917, by selectmen of Dennis. Granted March 23, 1917.
- CHARLES GARDNER**, to construct and maintain fish traps in Taunton River, Dighton. Approval of permit issued March 1, 1917, by selectmen of Dighton. Granted March 23, 1917.
- FRANK H. GRANT**, to set and maintain fish traps in Taunton River and Segreganset River, Dighton. Approval of permit issued March 1, 1917, by selectmen of Dighton. Granted March 23, 1917.
- SVEN HANSON**, to construct and maintain a fish trap at Grovers Ledge in the tidewaters of Rockport. Approval of permit issued Feb. 27, 1917, by selectmen of Rockport. Granted March 23, 1917.
- HOWARD HODGKINS**, to construct and maintain a floating fish trap off the southerly shore of Milk Island, Rockport. Approval of permit issued March 5, 1917, by selectmen of Rockport. Granted March 23, 1917.
- FREDERICK T. LANE**, to construct and maintain a floating fish trap off the northwesterly shore of Thatchers Island, Rockport. Approval of permit issued March 5, 1917, by selectmen of Rockport. Granted March 23, 1917.
- LEONARD L. VANDERHOOF**, to construct and maintain a fish weir in the waters of Vineyard Sound, Gay Head. Approval of permit issued Jan. 27, 1917, by selectmen of Gay Head. Granted March 23, 1917.
- BOSTON & MAINE RAILROAD**, to publish notice that the Mystic River will be closed by the Boston & Maine Railroad to the passage of vessels through the draw in its bridge on its Eastern Division, for the purpose of installing steel trusses in place of the present wooden ones. Granted March 27, 1917.

FREDERICK A. PEASE and WILLIAM C. CARD, to construct and maintain a fish weir in Buzzards Bay in the tidewaters of Fairhaven. Approval of permit issued March 14, 1917, by selectmen of Fairhaven. Granted April 3, 1917.

M. J. MAHONEY, to dump 300 tons of fine ballast at the receiving basin on the East Boston flats. Granted April 4, 1917.

CHARLESTOWN GAS AND ELECTRIC COMPANY, to dredge in Mystic River for enlarging and extending the berth at its wharf. Granted April 5, 1917.

ROY H. BEATTIE, INC., to deposit and store about 1,000 tons of stone on the easterly end of the filled land at South Boston flats. Granted April 5, 1917.

FREDERICK T. LANE, to construct a fish trap off the northwest shore of Straitsmouth Island, Rockport. Approval of permit issued March 27, 1917, by selectmen of Rockport. Granted April 5, 1917.

JOHN J. VEEDER, to construct and maintain a fish trap in Buzzards Bay, extending from the shore of Naushon Island. Approval of permit issued March 24, 1917, by selectmen of Gosnold. Granted April 6, 1917.

H. N. SPAULDING and S. M. MERRILL, to dredge two channels in Essex River and an anchorage basin at the inner end of each of these channels. Granted April 6, 1917.

SAMUEL T. CAHOON, to construct and maintain a fish trap in Buzzards Bay at "Rogers Set," Falmouth. Approval of permit issued April 1, 1917, by selectmen of Falmouth. Granted April 6, 1917.

JOHN J. VEEDER, to construct and maintain a fish trap in Buzzards Bay at "North Spindle Set," Falmouth. Approval of permit issued March 26, 1917, by selectmen of Falmouth. Granted April 6, 1917.

WILLIAM T. DUNN, to construct and maintain two fish traps in the tidewaters of Dartmouth. Approval of permit issued March, 1917, by selectmen of Dartmouth. Granted April 6, 1917.

EAST BOSTON GAS COMPANY, to dredge the berth alongside its wharf in East Boston. Granted April 10, 1917.

LESTER S. HOWARD, to remove material from the beach in front of his property at Monument Beach, Bourne. Granted April 11, 1917.

METROPOLITAN COAL COMPANY, to dredge the berth alongside its wharf in South Bay at the mouth of Roxbury Canal, Boston. Granted April 11, 1917.

JOHN R. FISH, Jr., to construct and maintain a fish weir in Buzzards Bay, Westport. Approval of permit issued March 31, 1917, by selectmen of Westport. Granted April 12, 1917.

HENRY W. NELSON, to maintain a floating fish trap in Gloucester Harbor off Niles' Beach, Gloucester. Approval of permit issued March 26, 1917, by municipal council of Gloucester. Granted April 12, 1917.

CARL GREEN, to maintain a floating fish trap in Gloucester Harbor inside Dog Bar Breakwater, Gloucester. Approval of permit issued March 26, 1917, by municipal council of Gloucester. Granted April 12, 1917.

- THOMAS DOUGLASS**, to maintain a floating fish trap in Gloucester Harbor off Black Bess, Gloucester. Approval of permit issued March 26, 1917, by municipal council of Gloucester. Granted April 12, 1917.
- A. H. VANDERHOOP and C. W. VANDERHOOP**, to construct and maintain a fish weir in Vineyard Sound, Gay Head. Approval of permit issued March 6, 1917, by selectmen of Gay Head. Granted April 12, 1917.
- OBED S. DAGGETT**, to construct and maintain a fish trap in "Kettle Cove" in Buzzards Bay. Approval of permit issued March 24, 1917, by selectmen of Gosnold. Granted April 12, 1917.
- OBED S. DAGGETT**, to construct and maintain a fish trap off the shore of Naushon Island at the "French Watering Place." Approval of permit issued March 24, 1917, by selectmen of Gosnold. Granted April 12, 1917.
- JOSHUA CRANE**, to construct and maintain a fish weir on the north side of No Mans Land Island, Chilmark. Approval of permit issued March 31, 1917, by selectmen of Chilmark. Granted April 12, 1917.
- BARTLETT E. BASSETT**, to construct and maintain a fish weir in the harbor of North Chatham. Approval of permit issued April 2, 1917, by selectmen of Chatham. Granted April 12, 1917.
- SELECTMEN OF THE TOWN OF HULL**, to take about 200 loads of gravel from a point on the beach lying between the new supply pier of the Nantasket Beach Steamboat Company and the old pier, known as the Hull Yacht Club Pier, Hull. Granted April 18, 1917.
- SUFFOLK COAL COMPANY**, to redredge its dock near Central Square, East Boston. Granted April 18, 1917.
- EDY C. FLANDERS & Co.**, to construct and maintain a fish weir in Vineyard Sound, Gay Head. Approval of permit issued April 4, 1917, by selectmen of Gay Head. Granted April 18, 1917.
- ORRIN H. DOUGLASS**, to construct and maintain a fish trap off Wonsons Point, Gloucester. Approval of permit issued April 5, 1917, by municipal council of Gloucester. Granted April 18, 1917.
- CITY OF BOSTON**, to store paving blocks on the land of the Commonwealth at South Boston. Granted April 18, 1917.
- LINUS JEFFERS and FRANCIS MANNING & Co.**, to construct and maintain a fish weir in Vineyard Sound, Gay Head. Approval of permit issued March 19, 1917, by selectmen of Gay Head. Granted April 18, 1917.
- WILLIAM STONE**, to construct and maintain a fish weir in Barnstable Bay, Dennis. Approval of permit issued April 3, 1917, by selectmen of Dennis. Granted April 18, 1917.
- JOHN E. RIGGS**, to set a floating trap on the westerly side of Ram Island in Manchester Harbor, Manchester. Approval of permit issued April 3, 1917, by selectmen of Manchester. Granted April 18, 1917.
- GEORGE C. FITZPATRICK**, to dump material on the Commonwealth Flats at East Boston, northerly of Governors Island. Granted April 20, 1917.

JAMES G. GIFFORD, to construct and maintain a fish weir in the tide-waters of Dennis. Approval of permit issued April 7, 1917, by selectmen of Dennis. Granted April 23, 1917.

OBED S. DAGGETT, to construct a fish trap in Vineyard Sound off the southerly side of Naushon Island, about $1\frac{1}{2}$ miles west of Tarpaulin Cove Lighthouse. Approval of permit issued March 31, 1917, by selectmen of Gosnold. Granted April 23, 1917.

CHARLES MANLY, to construct and maintain a hoop fyke in Slocums River, Dartmouth. Approval of permit issued April 12, 1917, by selectmen of Dartmouth. Granted April 23, 1917.

EDNEY BRIGGS, to construct and maintain a hoop fyke in Slocums River, Dartmouth. Approval of permit issued April 12, 1917, by selectmen of Dartmouth. Granted April 23, 1917.

GEORGE N. BRIGGS, to construct and maintain a hoop fyke in Slocums River, Dartmouth. Approval of permit issued April 12, 1917, by selectmen of Dartmouth. Granted April 23, 1917.

CHARLES J. BRIGGS, to construct and maintain a hoop fyke in Slocums River, Dartmouth. Approval of permit issued April 12, 1917, by selectmen of Dartmouth. Granted April 23, 1917.

M. J. MAHONEY, to dump 1,000 yards of fine ballast at the receiving basin on the East Boston flats. Granted April 24, 1917.

JOHN BROWN, to construct and maintain a fish weir in Buzzards Bay, Fairhaven. Approval of permit issued April 17, 1917, by selectmen of Fairhaven. Granted April 24, 1917.

BOSTON DREDGING COMPANY, to dump at the receiving basin on the East Boston flats 50,000 cubic yards of material dredged from various portions of Boston Harbor. Granted April 30, 1917.

BENJAMIN T. SMITH, to construct and maintain three fish traps and three hoop fykes in the tidewaters of Dartmouth. Approval of permit issued April 21, 1917, by the selectmen of Dartmouth. Granted May 2, 1917.

ALVIN F. WAITE and JAMES T. SMITH, to construct and maintain two fish traps in Buzzards Bay, Dartmouth. Approval of permit issued April 30, 1917, by selectmen of Dartmouth. Granted May 8, 1917.

BOARD OF BRIDGE COMMISSIONERS appointed under chapter 252 of the General Acts of 1915. Approval of plan of a proposed bridge across Connecticut River between Springfield and West Springfield, dated April 16, 1917. Granted May 10, 1917.

BURGESS COMPANY, to dredge approximately 1,500 cubic yards of material from Little Harbor, Marblehead. Granted May 10, 1917.

WHITMAN MILLS, to dredge a channel in Acushnet River, New Bedford. Granted May 10, 1917.

ATLANTIC WORKS, to dump ashes at the receiving basin at East Boston. Granted May 10, 1917.

GEORGE W. HARVEY COMPANY, to use and occupy 5,000 square feet of land on the Commonwealth Flats at South Boston near the corner of E and Summer streets. Granted May 14, 1917.

- LOCKE COAL COMPANY, to dredge the dock alongside its wharf on Medford Street, Malden. Granted May 15, 1917.
- JOSEPH B. GOULART, to construct and maintain a fish weir in Buzzards Bay, Fairhaven. Approval of permit issued May 1, 1917, by selectmen of Fairhaven. Granted May 15, 1917.
- NEW YORK, NEW HAVEN & HARTFORD RAILROAD COMPANY, to dredge the berth at a wharf on Fort Point Channel, Boston. Granted May 17, 1917.
- JOSEPH S. MACHADO, to construct and maintain a fish weir in Buzzards Bay, Fairhaven. Approval of permit issued May 14, 1917, by selectmen of Fairhaven. Granted May 17, 1917.
- BERTELSON & PETERSEN ENGINEERING COMPANY, to dump ashes at the receiving basin on the East Boston flats. Granted May 31, 1917.
- ARTHUR S. HALL, to construct and maintain a fish weir in the tidewaters of Brewster. Approval of permit issued May 16, 1917, by selectmen of Brewster. Granted May 31, 1917.
- LEWIS TARR, to set a floating fish trap off the western side of Egg Rock. Approval of permit issued May 15, 1917, by selectmen of Manchester. Granted May 31, 1917.
- HOWARD HODGKINS, to construct and maintain a fish trap off the southern shore of Straitsmouth Island, Rockport. Approval of permit issued May 17, 1917, by selectmen of Rockport. Granted May 31, 1917.
- THE NAVY DEPARTMENT OF THE UNITED STATES, to erect two wooden platforms on the second floor of the easterly shed of the Commonwealth Pier. Granted May 31, 1917.
- WILLIAM R. FARRELL, to dredge material from that portion of Mystic River lying between the wharf of the Charlestown Gas and Electric Company and the new channel recently dredged as an approach to the new draw in the Malden bridge and the bridge of the Boston Elevated Railway Company in Mystic River. Granted June 5, 1917.
- HUGH NAWN CONTRACTING COMPANY, to dredge the berth at the outer end of the wharf of the D. Doherty Coal Company on Freeport Street, Dorchester. Granted June 5, 1917.
- BETTS BROTHERS & Co., to dump ashes at the receiving basin on the East Boston flats. Granted June 5, 1917.
- FRED S. GORE, to occupy and use for storage 10,000 square feet of land on the Commonwealth Flats at South Boston at the northeasterly corner of D and Danby streets. Granted June 5, 1917.
- JOHN H. DRISCOLL, Jr., to use and occupy Berry Island in Lake Winthrop, Holliston. Granted June 7, 1917.
- UNITED STATES, to dump at the receiving station at East Boston not exceeding 25,000 cubic yards of material. Granted June 7, 1917.
- LORAN A. FROST, to maintain a floating fish trap in Gloucester Harbor, Gloucester. Approval of permit issued April 12, 1917, by municipal council of Gloucester. Granted June 7, 1917.

- LEWIS TARR, to maintain a floating fish trap on the western side of Egg Rock, Manchester. Approval of permit issued May 24, 1917, by municipal council of Gloucester. Granted June 7, 1917.
- BOSTON FISH MARKET CORPORATION, to erect and maintain fences with gates to close the entrances on the easterly and westerly sides of the Fish Pier at South Boston flats. Granted June 7, 1917.
- HOLBROOK, CABOT & ROLLINS CORPORATION, to construct a temporary pile wharf for use in connection with the contract for building a dry dock at South Boston. Granted June 12, 1917.
- BOSTON TRANSIT COMMISSION, to use a lot of land at the corner of C and Cypher streets, South Boston. Granted June 19, 1917.
- WILLIAM A. WINSOR, to construct and operate a fish weir or weirs in the tidewaters of Sandwich. Approval of permit issued March 5, 1917, by selectmen of Sandwich. Granted June 19, 1917.
- NAYLOR HATCH, to construct and maintain five eel fykes in Pamet River. Truro. Approval of permit issued June 7, 1917, by selectmen of Truro, Granted June 19, 1917.
- THE LYNN GAS AND ELECTRIC COMPANY, to dredge a channel in Lynn Harbor, Lynn. Granted June 19, 1917.
- E. N. PAINE, AGENT, O'NEILL TRAPS, to set and maintain fish traps in the tidewaters of Provincetown. Approval of permit issued May 1, 1917, by selectmen of Provincetown. Granted June 21, 1917.
- JOHN A. MATHESON, 2d, to set and maintain fish traps in the tidewaters of Provincetown. Approval of permit issued May 1, 1917, by selectmen of Provincetown. Granted June 21, 1917.
- GEORGE F. JOHNSON, to set and maintain fish traps in the tidewaters of Provincetown. Approval of permit issued May 1, 1917, by selectmen of Provincetown. Granted June 21, 1917.
- JOSHUA PAINE, to set and maintain fish traps in the tidewaters of Provincetown. Approval of permit issued May 1, 1917, by selectmen of Provincetown. Granted June 21, 1917.
- WILLIAM F. BAKER, to set and maintain fish traps in the tidewaters of Provincetown. Approval of permit issued May 1, 1917, by selectmen of Provincetown. Granted June 21, 1917.
- S. O. FISHER, to set and maintain fish traps in the tidewaters of Provincetown. Approval of permit issued May 1, 1917, by selectmen of Provincetown. Granted June 21, 1917.
- WHITE BAR WEIR COMPANY, to set and maintain fish traps in the tidewaters of Provincetown. Approval of permit issued May 1, 1917, by selectmen of Provincetown. Granted June 21, 1917.
- LONG POINT WEIR COMPANY, to set and maintain fish traps in the tidewaters of Provincetown. Approval of permit issued May 1, 1917, by selectmen of Provincetown. Granted June 21, 1917.
- MANUEL JAMES, to construct and maintain a fish trap in the tidewaters of Provincetown. Approval of permit issued May 1, 1917, by selectmen of Provincetown. Granted June 21, 1917.

- CONSOLIDATED WEIR COMPANY, to set and maintain fish traps in the tidewaters of Provincetown. Approval of permit issued May 1, 1917, by selectmen of Provincetown. Granted June 21, 1917.
- JOSEPH A. MANTA, to set and maintain fish traps in the tidewaters of Provincetown. Approval of permit issued May 1, 1917, by selectmen of Provincetown. Granted June 21, 1917.
- DEEP WATER WEIR COMPANY, to set and maintain fish traps in the tidewaters of Provincetown. Approval of permit issued May 1, 1917, by selectmen of Provincetown. Granted June 21, 1917.
- JACKSON R. WILLIAMS, to set and maintain fish traps in the tidewaters of Provincetown. Approval of permit issued May 1, 1917, by selectmen of Provincetown. Granted June 21, 1917.
- GASPARD SOUZA and CHARLES W. PRARAY, to construct and maintain a fish weir in Buzzards Bay, Fairhaven. Approval of permit issued June 11, 1917, by selectmen of Fairhaven. Granted June 21, 1917.
- MICHAEL F. DRISCOLL, to use and occupy land southerly of the existing bulkhead on Northern Avenue. Granted June 27, 1917.
- THE TREMONT NAIL COMPANY, to dredge in Wareham River at the Narrows, Wareham. Granted June 29, 1917.
- CANAL FISH AND FREEZING COMPANY, to construct and operate a fish weir or weirs, Sandwich. Approval of permit issued May 19, 1917, by selectmen of Sandwich. Granted July 5, 1917.
- MANUEL M. SILVER, to set and maintain a fish trap in the tidewaters of Provincetown. Approval of permit in effect May 1, 1917, by selectmen of Provincetown. Granted July 5, 1917.
- THADDEUS F. ELLIS, to construct and maintain a fish weir in Cape Cod Bay, Orleans. Approval of permit issued July 2, 1917, by selectmen of Orleans. Granted July 10, 1917.
- SYLVESTER M. HANSON, to construct and maintain a fish trap on the northerly side of Brown's Island, Plymouth. Approval of permit issued July 5, 1917, by selectmen of Plymouth. Granted July 10, 1917.
- GEORGE W. HARVEY COMPANY, to occupy a lot of land on the Commonwealth Flats at South Boston. Granted July 10, 1917.
- CITY OF FALL RIVER, to redredge in Mount Hope Bay, at and near the wharf of the Bowenville Coal Company, Fall River. Granted July 12, 1917.
- NEW YORK STATE DREDGING CORPORATION to remove not exceeding 10,000 tons of riprap stone from an area at South Boston. Granted July 12, 1917.
- BAY STATE DREDGING AND CONTRACTING COMPANY, to dump material northerly of Governors Island. Granted July 17, 1917.
- PARK COMMISSION OF THE CITY OF PITTSFIELD, to place markers in the waters of Pontoosuc Lake, Pittsfield. Granted July 17, 1917.
- ATLANTIC WORKS, to dump ashes at the receiving basin on the East Boston flats. Granted July 17, 1917.

- HARRY E. HUNT, to operate a fish trap in Duxbury Bay, Duxbury. Approval of permit issued July 2, 1917, by selectmen of Duxbury. Granted July 17, 1917.
- BAKER YACHT BASIN, INC., to dredge material from around the outer end of a marine railway on Town River, Quincy. Granted July 17, 1917.
- W. F. LOUGHMAN, to occupy a lot of land on the Commonwealth Flats at South Boston. Granted July 17, 1917.
- PITTSBURG OIL COMPANY, to lay, maintain and use iron pipes on a portion of the Commonwealth Flats at South Boston. Granted July 17, 1917.
- CITY OF FALL RIVER, to dredge two areas in Taunton River. Granted Aug. 6, 1917.
- CANAL FISH AND FREEZER COMPANY, to construct and maintain a fish trap in the tidewaters of Plymouth. Approval of permit issued July 19, 1917, by selectmen of Plymouth. Granted Aug. 6, 1917.
- LEONARD B. DILL, to erect and maintain an eel fyke in the waters of Fresh Brook, Wellfleet. Approval of permit issued July 28, 1917, by selectmen of Wellfleet. Granted Aug. 9, 1917.
- FRANK A. WILLIAMS, to erect and maintain two eel fykes below Herring River Dike, Wellfleet. Approval of permit issued June 30, 1917, by selectmen of Wellfleet. Granted Aug. 9, 1917.
- RAYMOND S. HIGGINS, to erect and maintain an eel fyke in the waters of Fresh Brook, Wellfleet. Approval of permit issued July 28, 1917, by selectmen of Wellfleet. Granted Aug. 9, 1917.
- DAVID E. CURRAN, to erect and maintain two eel fykes below Herring River Dike, Wellfleet. Approval of permit issued June 30, 1917, by selectmen of Wellfleet. Granted Aug. 9, 1917.
- CITY FUEL COMPANY, to dredge a berth at the outer end of its wharf in South Bay, Boston. Granted Aug. 14, 1917.
- BOSTON & MAINE RAILROAD, to dredge a dock at Mystic Wharf, Charlestown. Granted Aug. 14, 1917.
- WILLIAM M. KENDRICK, to set and maintain a fyke for eels in a creek 50 feet at least below the dike extending from Samuel Ryders Island, Chatham. Approval of permit issued July 16, 1917, by selectmen of Chatham. Granted Aug. 16, 1917.
- BENJAMIN STEVENS, to construct and maintain a floating trap in Salem Bay on the southwest side of Lowell or Cat Island in Marblehead. Approval of permit issued Dec. 28, 1916, by the city council of Salem and May 17, 1917, by selectmen of Marblehead. Granted Aug. 16, 1917.
- AUGUSTUS W. BAKER, to set and maintain a fyke for eels in Frost Fish Creek, Chatham. Approval of permit issued Aug. 6, 1917, by selectmen of Chatham. Granted Aug. 16, 1917.
- WILLIAM M. KENDRICK, to set and maintain a fyke for eels in a creek on the westerly side of Morris Island, Chatham. Approval of permit issued Aug. 6, 1917, by selectmen of Chatham. Granted Aug. 16, 1917.

BETTS BROTHERS & Co., to dump ashes and cinders at the receiving basin at Jeffries Point, East Boston. Granted Aug. 24, 1917.

NATHAN A. BUCK and **HERBERT F. CAHOON**, to construct and maintain a fish weir in Chatham South Bay. Approval of permit issued Aug. 6, 1917, by selectmen of Chatham. Granted Aug. 24, 1917.

EDWIN N. PAINE, to set and maintain a fish trap in the tidewaters of Provincetown. Approval of permit in effect May 1, 1917, by selectmen of Provincetown. Granted Aug. 24, 1917.

JOHN A. LEWIS, AGENT, to set and maintain a fish trap in the tidewaters of Provincetown. Approval of permit in effect May 1, 1917, by selectmen of Provincetown. Granted Aug. 24, 1917.

JOSHUA PAINE, to set and maintain fish traps in the tidewaters of Provincetown. Approval of permit in effect May 1, 1917, by selectmen of Provincetown. Granted Aug. 24, 1917.

JACKSON R. WILLIAMS, to set and maintain a fish trap in the tidewaters of Provincetown. Approval of permit in effect May 1, 1917, by selectmen of Provincetown. Granted Aug. 24, 1917.

JOHN A. MATHESON, 2d, to set and maintain fish traps in the tidewaters of Provincetown. Approval of permit in effect May 1, 1917, by selectmen of Provincetown. Granted Aug. 24, 1917.

METROPOLITAN COAL COMPANY, to use and occupy land on the Commonwealth Flats at South Boston. Granted Aug. 28, 1917.

JAMES R. BAKER and **ROBERT CLARK**, to construct and maintain a fish weir in the tidewaters of Yarmouth. Approval of permit granted Aug. 3, 1917, by selectmen of Yarmouth. Granted Aug. 28, 1917.

CHARLES E. WESTGATE, to construct and maintain a fish weir in the tidewaters of Fairhaven. Approval of permit granted Aug. 20, 1917, by selectmen of Fairhaven. Granted Aug. 28, 1917.

EUGENE B. ELLIS, to construct two fish traps in Namskaket Creek, Brewster. Approval of permit issued Aug. 23, 1917, by selectmen of Brewster. Granted Aug. 28, 1917.

ORICK D. YOUNG, to set and maintain a fyke for eels in Henry Harding Creek on the north side of Oyster Pond River, Chatham. Approval of permit issued Aug. 20, 1917, by selectmen of Chatham. Granted Aug. 28, 1917.

ALONZO F. CAHOON, to construct and maintain a fish weir in South Bay, Chatham. Approval of permit issued Aug. 20, 1917, by selectmen of Chatham. Granted Aug. 28, 1917.

Capt. W. R. RUSH, U.S.N., to construct a temporary boat landing on piles on Weymouth Back River at the naval magazine in Hingham. Granted Sept. 4, 1917.

W. H. ELLIS & SON COMPANY, to dump ashes and cinders at the receiving basin at Jeffries Point, East Boston. Granted Sept. 5, 1917.

MANUEL FISHER, to construct and maintain an eel fyke in Pamet River, Truro. Approval of permit issued Aug. 25, 1917, by selectmen of Truro. Granted Sept. 10, 1917.

- ALONZO F. CAHOON, to construct and maintain a fish weir in South Bay, Chatham. Approval of permit issued Aug. 20, 1917, by selectmen of Chatham. Granted Sept. 10, 1917.
- BARTLETT E. BASSETT, to construct and maintain a fish weir in Pleasant Bay, Chatham. Approval of permit issued Aug. 20, 1917, by selectmen of Chatham. Granted Sept. 10, 1917.
- JOSE BROWN and ANTONE BROWN, to erect and maintain a fish weir in the tidewaters of Fairhaven. Approval of permit issued Aug. 20, 1917, by selectmen of Fairhaven. Granted Sept. 10, 1917.
- FREEMAN T. ELLIS, to construct and maintain two fish traps in Mill Creek, Brewster. Approval of permit issued Sept. 1, 1917, by selectmen of Brewster. Granted Sept. 10, 1917.
- F. THOMAS ELLIS, to construct and maintain two fish traps in Quivet Creek, Brewster. Approval of permit issued Sept. 1, 1917, by selectmen of Brewster. Granted Sept. 10, 1917.
- CHARLES W. SNOW, to construct and maintain ten eel fykes in Pamet River, Truro. Approval of permit issued Aug. 18, 1917, by selectmen of Truro. Granted Sept. 10, 1917.
- BOSTON DREDGING COMPANY, to dump dredged material at the receiving basin at Jeffries Point, East Boston. Granted Sept. 18, 1917.
- NEW ENGLAND IRON WORKS, to construct and maintain three driveways through the curbstone and sidewalk opposite its premises on the northerly side of Fargo Street, South Boston. Granted Sept. 18, 1917.
- HOLBROOK, CABOT & ROLLINS CORPORATION, to remove 2,000 tons of riprap stone from an area at South Boston. Granted Sept. 19, 1917.
- GLOUCESTER COAL COMPANY, to dredge in its dock in Gloucester Harbor. Granted Sept. 20, 1917.
- NAYLOR HATCH, to construct and maintain an eel fyke in Pamet River, Truro. Approval of permit issued Sept. 8, 1917, by selectmen of Truro. Granted Sept. 20, 1917.
- M. J. MAHONEY, to extend the time for dumping ballast at the receiving basin on the East Boston flats. Granted Sept. 20, 1917.
- UNITED FRUIT COMPANY, to dump at the dumping ground prescribed by the Federal government for dumping material dredged in Boston Harbor, the decayed fruit constituting a part of the cargo of a steamer belonging to said company. Granted Sept. 26, 1917.
- BOSTON DEVELOPMENT and SANITARY COMPANY, to dredge the berth at its wharf on Chelsea Creek at Orient Heights. Granted Sept. 26, 1917.
- GEORGE T. RENDLE COMPANY, to deposit dredged material at the receiving basin at Jeffries Point, East Boston. Granted Sept. 26, 1917.
- ARTHUR D. FROST and ERNEST E. CRONK, to construct and maintain a floating fish trap off the southeast end of Tinkers Island. Approval of permit issued Sept. 7, 1917, by selectmen of Marblehead. Granted Sept. 26, 1917.

- EDWIN P. COOK, to erect and maintain an eel fyke in Duck Creek, Wellfleet. Approval of permit issued Aug. 25, 1917, by selectmen of Wellfleet. Granted Sept. 27, 1917.
- RALPH E. COOK, to erect and maintain an eel fyke in Duck Creek, Wellfleet. Approval of permit issued Aug. 25, 1917, by selectmen of Wellfleet. Granted Sept. 27, 1917.
- DAVID C. LOMBARD, to erect and maintain an eel fyke in the northeast arm of Duck Creek, Wellfleet. Approval of permit issued Sept. 1, 1917, by selectmen of Wellfleet. Granted Sept. 27, 1917.
- MORRIS E. MAKER, to erect and maintain an eel fyke in the northeast arm of Duck Creek, Wellfleet. Approval of permit issued Sept. 1, 1917, by selectmen of Wellfleet. Granted Sept. 27, 1917.
- LESTER E. NEWCOMB, to erect and maintain an eel fyke in Duck Creek, Wellfleet. Approval of permit issued Sept. 8, 1917, by selectmen of Wellfleet. Granted Sept. 27, 1917.
- BOSTON ELEVATED RAILWAY COMPANY, to dump snow and ice removed by it on a portion of the Commonwealth Flats at South Boston, bounded by D, E, Cypher and Anchor streets. Granted Sept. 27, 1917.
- W. H. ELLIS & SON COMPANY, to dredge in Chelsea Creek. Granted Sept. 27, 1917.
- WILLIAM A. BLOOMER, to construct and maintain a fish weir in South Bay, Chatham. Approval of permit issued Oct. 1, 1917, by selectmen of Chatham. Granted Oct. 4, 1917.
- H. NELSON WILBUR, to construct and maintain a fish weir in the tidewaters of Fairhaven. Approval of permit issued Oct. 1, 1917, by selectmen of Fairhaven. Granted Oct. 9, 1917.
- JAMES R. BAKER and ROBERT CLARK, to construct and maintain a fish weir in the tidewaters of Yarmouth. Approval of permit issued Oct. 9, 1917, by selectmen of Yarmouth. Granted Oct. 16, 1917.
- BAY STATE DREDGING & CONTRACTING COMPANY, to deposit material at the receiving basin at Jeffries Point, East Boston. Granted Oct. 16, 1917.
- BROWN-WALES COMPANY, to use and occupy small building on the southerly side of Fargo Street about 30 feet east of the premises of said company; also, to use certain flats southerly of the same. Granted Oct. 18, 1917.
- DANIEL C. JENNINGS, to maintain and operate a fish trap in Buzzards Bay, Falmouth. Approval of permit issued Oct. 15, 1917, by selectmen of Falmouth. Granted Oct. 18, 1917.
- CRIMMINS & PEIRCE COMPANY, to construct and use an office structure on the second floor of the west shed on Commonwealth Pier No. 5. Granted Oct. 18, 1917.
- FORE RIVER SHIPBUILDING CORPORATION, to dredge at Squantum, Quincy. Granted Oct. 19, 1917.
- OSCAR C. DAVIS, to remove material from his beach at Sias Point in East Wareham. Granted Oct. 19, 1917.

- THE BUTLER MILL, to dredge the entrance to its salt water intake in New Bedford Harbor, New Bedford. Granted Oct. 19, 1917.
- HOWARD HODGKINS, to construct and maintain a fish trap in the tide-waters of Rockport. Approval of permit issued July 26, 1917, by selectmen of Rockport. Granted Oct. 25, 1917.
- BOSTON SHIP BROKERAGE COMPANY, to deposit at the receiving basin at Jeffries Point, East Boston, lime, damaged by water. Granted Nov. 7, 1917.
- UNITED STATES OF AMERICA, by the FORE RIVER SHIPBUILDING CORPORATION, to dredge the mouth of Neponset River. Granted Nov. 7, 1917.
- CITY OF FALL RIVER, to dredge in Mount Hope Bay at the foot of Ferry Street. Granted Nov. 13, 1917.
- EDWARD PRESTON and JOHN F. BAKER, to construct and maintain a fish weir in Vineyard Sound, Dennis, beginning at a point 1,345 feet east of Bass River Lighthouse. Approval of permit issued Nov. 1, 1917, by selectmen of Dennis. Granted Nov. 13, 1917.
- EDWARD PRESTON and JOHN F. BAKER, to construct and maintain a fish weir in Vineyard Sound, Dennis, beginning at a point 725 feet east of Bass River Lighthouse. Approval of permit issued Nov. 1, 1917, by selectmen of Dennis. Granted Nov. 13, 1917.
- METROPOLITAN COAL COMPANY, to dredge at the end of its wharf on Millers River, Cambridge. Granted Nov. 16, 1917.
- LEWIS WHARF CORPORATION, to dredge the berth on the northerly side of its wharf in Boston Harbor. Granted Nov. 16, 1917.
- BOSTON STORAGE COMPANY, to dredge a berth at its wharf in Boston Harbor, at East Boston. Granted Nov. 20, 1917.
- FURNESS, WITHEY & Co., LTD., to use and occupy for storage purposes the pier and docks or berths adjoining the same at South Boston, belonging to the Commonwealth and lying between the Fish Pier and the property leased to the Metropolitan Coal Company. Granted Nov. 20, 1917.
- BATCHELDER BROTHERS, to dredge the berth in front of its premises at the head of Roxbury Canal, Boston. Granted Nov. 20, 1917.
- UNITED STATES OF AMERICA, by the FORE RIVER SHIPBUILDING CORPORATION, to dredge an area in Dorchester Bay. Granted Nov. 20, 1917.
- ATLANTIC WORKS, to dredge alongside its marine railways at East Boston. Granted Nov. 22, 1917.

CONSERVING AND EQUALIZING THE FLOW OF WATER IN RIVERS AND STREAMS.

The annual report of the Commission for 1916 contains a preliminary report, under the provisions of chapter 113 of the Resolves of 1915, which authorized and directed the Board of Harbor and Land Commissioners to investigate the matter of conserving and equalizing the flow of water in the rivers and natural streams of the Commonwealth. This resolve also authorized the expenditure, for the purposes of the resolve during the years 1915, 1916 and 1917, of not exceeding \$20,000 in addition to the unexpended balance of an appropriation made to carry on an investigation of this matter under authority of chapter 95 of the Resolves of 1914.

A special report on this subject will be made during the legislative session of 1918, which will show in detail what has been thus far accomplished.

It is recommended that the investigation provided for by the resolve of 1915 aforesaid be continued, and that authority be given this Commission to expend the sum of \$10,000 in addition to the unexpended balance of the appropriation made to carry on the investigation authorized by the resolve of 1915 aforesaid for the purposes set forth in said resolve.

This recommendation has been embodied in a draft of a bill submitted.

FISH WEIRS.

The proper location of fish weirs in Provincetown Harbor, as well as in all other tidewaters of the Commonwealth, under licenses and permits granted by the mayor and aldermen of a city and the selectmen of a town lying upon tidewater, and by authority of section 116 of chapter 91 of the Revised Laws, as amended by chapter 523 of the Acts of 1913, and chapter 54 of the General Acts of 1917, is an important subject for consideration. Not only should the location of the structure be so fixed as to cause the least interference with navigation, but a location suitable for fishing purposes should be determined. Therefore the Commission recommends that section 116 of chapter 91 of the Revised Laws be further amended so

as to authorize the mayor and aldermen of a city and the selectmen of a town bordering upon tidewater to grant authority or license for the construction of weirs, pound nets or fish traps in tidewater, not only in locations where no harbor line exists, but also in locations beyond established harbor lines; and still further amended so as to authorize the Commission on Waterways and Public Lands to approve, in its discretion, and upon such terms and conditions as it may deem necessary, or to disapprove any authority or license given by the mayor and aldermen and selectmen, as aforesaid, for constructing such weirs, pound nets or fish traps, not only in locations where no harbor lines exist, but also in locations beyond established harbor lines.

This recommendation has been embodied in a draft of a bill submitted.

HARBOR AND LAND COMMISSIONERS' TIDE WATER FUND.

By chapter 257 of the Acts of 1912 the Harbor and Land Commissioners' Tide Water Fund was established, into which all moneys received in payment for tidewater displacement and for rights and privileges granted in tidewater land of the Commonwealth, under licenses granted by the Board of Harbor and Land Commissioners, by authority contained in chapter 96 of the Revised Laws, for structures and other work under the jurisdiction of the Board at that time, were to be paid. In view of the establishment of the Commission on Waterways and Public Lands, succeeding to the powers and duties of the former Board of Harbor and Land Commissioners, it is recommended that this fund be now designated as the Waterways Fund.

This recommendation has been embodied in a draft of bill submitted.

RE-ESTABLISHMENT OF CERTAIN TRIANGULATION POINTS.

By chapter 223 of the General Acts of 1915 the Board of Harbor and Land Commissioners was authorized to make such surveys and do such other work as may be required by any order of the Land Court to re-establish and permanently mark

certain stations previously established in connection with the topographical survey of the Commonwealth and the town boundary survey, which have been lost or destroyed, and to obtain the geographical position of such new points and stations as may be required from time to time by the court. The Board was allowed to expend not exceeding \$1,000 from the sum of \$1,500 which may be annually paid out of the State treasury.

The Commission reports that during the year ending Nov. 30, 1917, the location of the following triangulation stations was determined and their geographical positions furnished to the Land Court: 24 stations on the island of Nantucket; 3 stations in the town of Falmouth; 1 station in the town of Bourne; 7 stations in the town of Wilmington.

Amount expended during the year, \$977.09.

Total expenditure to Dec. 1, 1917, \$2,741.93.

The foregoing report is respectfully submitted.

JOHN N. COLE, *Chairman,*
JESSE B. BAXTER,
WILLIAM S. McNARY,
Commissioners.

Dec. 1, 1917.

APPENDIX.

INCOME OF HARBOR COMPENSATION FUND—Concluded.

[illegible]

Expenditures.

Construction work:—	1913.	1914.	1915.	1916.	1917.	Total.
Dredging opposite Leyland Line pier,	\$19,232 03	—	—	—	—	\$19,232 03
Dredging berth for training ship,	446 50	—	—	—	—	446 50
Dredging opposite Grand Junction wharves,	—	\$6,734 35	—	—	—	6,734 35
Dredging Mystic River,	—	—	—	—	—	1,439 12
Dredging Mystic River near Mystic Wharf,	—	\$1,439 12	—	—	—	1,439 12
Dredging Mystic River west of Chelsea Bridge,	—	14,518 40	—	—	—	14,518 40
Dredging opposite Long and Central wharves and National Docks,	—	—	—	\$40,336 74	\$7,120 85	47,457 59
Dredging opposite Pier No. 2, South Boston,	—	7,456 84	\$7,841 26	—	—	15,298 10
Engineering,	90 00	—	—	—	1,434 24	1,434 24
Payments by State Treasurer,	—	1,952 10	860 91	2,835 62	528 42	6,267 05
	—	—	126 45	11,547 56	757 58	12,431 59
	<u>\$19,768 53</u>	<u>\$6,734 35</u>	<u>\$8,828 62</u>	<u>\$54,719 92</u>	<u>\$9,841 09</u>	<u>\$125,258 97</u>

Amount in Harbor Compensation Fund Nov. 30, 1917,

\$372,112 13

Appropriation for dredging Boston Harbor (Chelsea Creek) (chapter 348, Special Acts of 1917),

\$100,000 00

PORT OF BOSTON FUND.

1913.

Transfer from Commonwealth Flats Improvement Fund, receipts Dec. 1, 1911, to June 13, 1912 (chapter 663, Acts of 1912),	\$71,654 01
Income June 13, 1912, to Nov. 30, 1912,	37,445 25
	<u>\$109,099 26</u>
Appropriation (chapter 663, Acts of 1912),	\$60,000 00
Expenditures, salaries and expenses,	42,771 69
	<u>\$17,228 31</u>
Unexpended balance of appropriation,	
Balance in fund Nov. 30, 1912,	\$46,327 57

[Jan.

PORT OF BOSTON FUND — Continued.

[illegible]

1915.		1919	1918
Income Dec. 1, 1914, to Nov. 30, 1915,		171,989 12	
			\$199,252 22
Appropriation (chapter 308, Special Acts of 1915),			
Expenditures, salaries and expenses,		\$80,000 00	\$75,085 57
		75,085 57	
Unexpended balance of appropriation,		\$4,914 43	
Appropriation, publicity (chapter 712, Acts of 1912) (balance Dec. 1, 1914),		\$1,504 93	
Appropriation (chapter 308, Special Acts of 1915),		2,000 00	
		\$3,504 93	
Expenditures,		3,134 72	3,134 72
Unexpended balance of appropriation,		\$370 21	
Expenditures from fund at large (chapter 663, Acts of 1912), operation and maintenance of Commonwealth's property,			47,476 56
Expenditures by State Treasurer,			747 20
Balance in fund Nov. 30, 1915,			128,444 05
			\$72,808 17
1916.			
Income Dec. 1, 1915, to Nov. 30, 1916,			195,961 90
			\$268,770 07
Appropriation (chapter 170, Special Acts of 1916),			
Balance Dec. 1, 1915,		\$85,000 00	
		143 24	
Expenditures, salaries and expenses,		\$85,143 24	\$69,331 82
		69,331 82	
Unexpended balance of appropriation,		\$15,811 42	

PORT OF BOSTON FUND — Continued.

1916 — Con.			
Appropriation, publicity (chapter 170, Special Acts of 1916),	\$5,000 00		
Balance Dec. 1, 1915,	112 85		
Expenditures,	\$5,112 85	\$2,947 64	
Unexpended balance of appropriation,	2,947 64		
Expenditures from fund at large (chapter 663, Acts of 1912), operation and maintenance of Commonwealth's property,	\$2,165 21	79,117 77	\$151,387 23
Balance in fund Nov. 30, 1916,			\$117,372 84
1917.			
Income Dec. 1, 1916, to Nov. 30, 1917,			165,087 20
Allowance from Governor's extraordinary expense appropriation,			\$282,470 04
Appropriation (chapter 98, Special Acts of 1917), salaries of commissioners,			4,000 00
Expenditures,	\$12,500 00		\$286,470 04
Appropriation (chapter 98, Special Acts of 1917), traveling expenses,	12,500 00	\$12,500 00	
Expenditures,	\$1,200 00		
Appropriation (chapter 98, Special Acts of 1917), compensation and expenses of engineers, etc.,	\$1,200 00	1,200 00	
Expenditures, salaries and expenses,	53,127 60		
Unexpended balance of appropriation,	\$5,872 40		

Appropriation (chapter 98, Special Acts of 1917), incidental and contingent,	\$12,500 00		
Expenditures,	4,606 26		4,606 26
Unexpended balance of appropriation,	\$7,893 74		
Appropriation (chapter 98, Special Acts of 1917), publicity,	\$2,500 00		
Expenditures, salaries and expenses,	1,890 71		1,890 71
Unexpended balance of appropriation,	\$609 29		
Appropriation (chapter 98, Special Acts of 1917), operation and maintenance of Commonwealth Pier No. 5,	\$46,000 00		
Allowance from Governor's extraordinary expense appropriation,	4,000 00		
Expenditures, salaries and expenses,	\$50,000 00		
	48,644 82		48,644 82
Unexpended balance of appropriation, to revert to Governor's extraordinary expense appropriation,	\$1,355 18		
Appropriation (chapter 98, Special Acts of 1917), repairing damages,	\$8,500 00		
Expenditures, salaries and expenses,	7,895 24		7,895 24
Unexpended balance of appropriation,	\$1,604 76		
Appropriation (chapter 98, Special Acts of 1917), triangulation points and stations,	\$1,000 00		
Expenditures, salaries and expenses,	977 09		977 09
Unexpended balance of appropriation,	\$22 91		
Expenditures from fund at large (chapter 663, Acts of 1912), operation and maintenance of Commonwealth's property,	35,388 01		35,388 01
Total expenditures,		\$166,229 73	166,229 73
Balance of allowance from Governor's extraordinary expense appropriation to revert,			\$120,240 31
Balance Nov. 30, 1917,			1,355 18
			\$118,885 13

DEVELOPMENT OF THE PORT OF BOSTON LOAN FUND — *Continued.**Expenditures — Con.*

DRY DOCK.	1913.					1914.					1915.					1916.					1917.					Total.				
	Contract work: —																													
Bulkhead,	\$11,288 00	\$149,822 07	\$6,629 61	\$10,274 38		\$11,288 00	\$149,822 07	\$6,629 61	\$10,274 38		\$11,288 00	\$149,822 07	\$6,629 61	\$10,274 38		\$11,288 00	\$149,822 07	\$6,629 61	\$10,274 38		\$11,288 00	\$149,822 07	\$6,629 61	\$10,274 38		\$11,288 00	\$149,822 07	\$6,629 61	\$10,274 38	
Dredging and filling,	—	96,411 00	140,471 16	41,726 20		—	96,411 00	140,471 16	41,726 20		—	96,411 00	140,471 16	41,726 20		—	96,411 00	140,471 16	41,726 20		—	96,411 00	140,471 16	41,726 20		—	96,411 00	140,471 16	41,726 20	
Dredging Reserved Channel,	—	8,527 43	22,933 65	—		—	8,527 43	22,933 65	—		—	8,527 43	22,933 65	—		—	8,527 43	22,933 65	—		—	8,527 43	22,933 65	—		—	8,527 43	22,933 65	—	
Borings,	—	543 00	1,899 90	—		—	543 00	1,899 90	—		—	543 00	1,899 90	—		—	543 00	1,899 90	—		—	543 00	1,899 90	—		—	543 00	1,899 90	—	
Construction,	—	—	—	—		—	—	—	—		—	—	—	—		—	—	—	—		—	—	—	—		—	—	—	—	
Engineering,	2,584 02	18,155 92	22,532 65	36,732 86		2,584 02	18,155 92	22,532 65	36,732 86		2,584 02	18,155 92	22,532 65	36,732 86		2,584 02	18,155 92	22,532 65	36,732 86		2,584 02	18,155 92	22,532 65	36,732 86		2,584 02	18,155 92	22,532 65	36,732 86	
	\$13,872 02	\$273,459 42	\$194,466 97	\$188,379 20		\$13,872 02	\$273,459 42	\$194,466 97	\$188,379 20		\$13,872 02	\$273,459 42	\$194,466 97	\$188,379 20		\$13,872 02	\$273,459 42	\$194,466 97	\$188,379 20		\$13,872 02	\$273,459 42	\$194,466 97	\$188,379 20		\$13,872 02	\$273,459 42	\$194,466 97	\$188,379 20	
EAST BOSTON.																														
Contract work: —																														
Borings,	\$3,320 75	—	—	—		\$3,320 75	—	—	—		\$3,320 75	—	—	—		\$3,320 75	—	—	—		\$3,320 75	—	—	—		\$3,320 75	—	—	—	
Dredging opposite Pier No. 1,	—	\$45,139 28	\$11,455 43	\$5,647 25		—	\$45,139 28	\$11,455 43	\$5,647 25		—	\$45,139 28	\$11,455 43	\$5,647 25		—	\$45,139 28	\$11,455 43	\$5,647 25		—	\$45,139 28	\$11,455 43	\$5,647 25		—	\$45,139 28	\$11,455 43	\$5,647 25	
Jeffries Point ranges,	—	—	213 58	—		—	—	213 58	—		—	—	213 58	—		—	—	213 58	—		—	—	213 58	—		—	—	213 58	—	
Takings,	—	779,184 05	61,126 86	514,566 30		—	779,184 05	61,126 86	514,566 30		—	779,184 05	61,126 86	514,566 30		—	779,184 05	61,126 86	514,566 30		—	779,184 05	61,126 86	514,566 30		—	779,184 05	61,126 86	514,566 30	
Reclamation of flats,	—	—	—	195,388 52		—	—	—	195,388 52		—	—	—	195,388 52		—	—	—	195,388 52		—	—	—	—		—	—	—	—	
Jeffries Point bulkhead,	—	—	—	75,488 32		—	—	—	75,488 32		—	—	—	75,488 32		—	—	—	75,488 32		—	—	—	—		—	—	—	—	
Engineering,	2,894 28	20,029 88	6,295 60	12,968 57		2,894 28	20,029 88	6,295 60	12,968 57		2,894 28	20,029 88	6,295 60	12,968 57		2,894 28	20,029 88	6,295 60	12,968 57		2,894 28	20,029 88	6,295 60	12,968 57		2,894 28	20,029 88	6,295 60	12,968 57	
	\$6,215 03	\$844,353 21	\$79,091 47	\$804,058 96		\$6,215 03	\$844,353 21	\$79,091 47	\$804,058 96		\$6,215 03	\$844,353 21	\$79,091 47	\$804,058 96		\$6,215 03	\$844,353 21	\$79,091 47	\$804,058 96		\$6,215 03	\$844,353 21	\$79,091 47	\$804,058 96		\$6,215 03	\$844,353 21	\$79,091 47	\$804,058 96	
SOUTH BOSTON.																														
Contract work: —																														
Commonwealth Pier No. 5,	\$1,600,036 35	\$1,129,498 75	\$44,476 35	\$72,259 58		\$1,600,036 35	\$1,129,498 75	\$44,476 35	\$72,259 58		\$1,600,036 35	\$1,129,498 75	\$44,476 35	\$72,259 58		\$1,600,036 35	\$1,129,498 75	\$44,476 35	\$72,259 58		\$1,600,036 35	\$1,129,498 75	\$44,476 35	\$72,259 58		\$1,600,036 35	\$1,129,498 75	\$44,476 35	\$72,259 58	
Commonwealth Pier No. 5 (miscellaneous and extra work),	10,459 60	—	—	—		10,459 60	—	—	—		10,459 60	—	—	—		10,459 60	—	—	—		10,459 60	—	—	—		10,459 60	—	—	—	
Miscellaneous painting,	—	6,170 15	2,369 85	—		—	6,170 15	2,369 85	—		—	6,170 15	2,369 85	—		—	6,170 15	2,369 85	—		—	6,170 15	2,369 85	—		—	6,170 15	2,369 85	—	
Cargo hoists,	—	9,723 91	2,318 09	—		—	9,723 91	2,318 09	—		—	9,723 91	2,318 09	—		—	9,723 91	2,318 09	—		—	9,723 91	2,318 09	—		—	9,723 91	2,318 09	—	
Covering pipes,	—	—	3,949 00	—		—	—	3,949 00	—		—	—	3,949 00	—		—	—	3,949 00	—		—	—	—	—		—	—	—	—	
Painting Kinnear doors and sprinkler pipes in head house,	—	—	295 00	—		—	—	295 00	—		—	—	295 00	—		—	—	295 00	—		—	—	—	—		—	—	—	—	
	—	—	295 00	—		—	—	295 00	—		—	—	295 00	—		—	—	295 00	—		—	—	—	—		—	—	—	—	

Steel signs,	-	-	-	22 50	-	-	22 50
Viaduct,	-	-	106,160 18	-	-	-	106,160 18
Viaduct foundation,	24,605 80	-	95,544 21	7,831 80	-	-	127,981 81
Viaduct superstructure,	-	-	86,417 41	4,548 29	-	-	90,965 70
Viaduct tracks,	-	-	-	-	-	\$1,891 48	1,891 48
Dredging opposite Pier No. 5 and approaches,	94,830 00	-	40,134 97	2,358 44	-	-	137,323 41
Grain elevator "Golder,"	31,191 57	-	-	-	-	-	31,191 57
Grain elevator "Moulton,"	-	-	25,939 25	3,360 75	-	-	29,300 00
Commonwealth Pier No. 6 (account of claims of Tyson, Wear & Marshall),	-	-	-	-	-	-	64,090 33
Ladders and steps,	-	-	-	18,500 00	45,590 33	1,315 00	1,315 00
Watchmen's clock system, downspouts, coal pocket and fire protection equipment,	-	-	-	-	-	-	3,163 53
Industrial track,	-	-	-	-	-	350 00	350 00
Northern Avenue, paving and regulating,	-	-	-	6,561 19	-	-	6,561 19
Railroad yard,	-	-	-	458 10	-	-	458 10
Northern Avenue, repair,	-	-	-	2,282 31	-	-	2,282 31
Northern Avenue, bulkhead,	-	-	-	-	15,494 05	9,128 85	24,622 90
Northern Avenue, test borings,	-	-	-	-	287 00	-	287 00
Tide gage,	-	-	-	-	237 00	-	237 00
Commonwealth Pier No. 6, breakwater,	-	-	-	16,977 53	-	-	16,977 53
Northern Avenue fence,	-	-	-	710 00	-	-	710 00
Engineering,	125,938 55	-	57,820 05	23,121 24	18,662 10	852 61	226,394 55
	\$1,887,061 87	\$1,557,408 88	\$140,140 44	\$152,530 06	\$16,701 47	\$3,753,842 72	
MYSTIC RIVER AT MALDEN BRIDGE.							
Appropriation from Development of the Port of Boston Loan Fund (chapter 337, Special Acts of 1915), \$25,000,	-	-	-	-	-	-	-
Contract work:—	-	-	-	-	-	-	-
Mystic River, dredging,	-	-	-	\$3,381 94	\$325 91	\$965 00	\$4,302 85
Engineering,	-	-	-	577 12	18 49	39 45	635 06
	-	-	-	\$3,959 06	\$344 40	\$634 45	\$4,937 91

DEVELOPMENT OF THE PORT OF BOSTON LOAN FUND — *Concluded.*

Expenditures — Con.						
	1913.	1914.	1915	1916.	1917.	Total.
MYSTIC RIVER IMPROVEMENT.						
Appropriation from Development of the Port of Boston Loan Fund (chapter 253, General Acts of 1916) unexpended, to revert to Development of the Port of Boston Loan Fund, \$75,000,	-	-	-	-	-	-
Total expenditures,						\$6,973,664 32
Unexpended balance Nov. 30, 1917: —						
Allotted,						\$1,994,835 37
Unallotted,						31,500 31
						<hr/> \$2,026,335 68
MYSTIC RIVER IMPROVEMENT.						
Appropriation (chapter 253, General Acts of 1916), \$275,000,	-	-	-	-	-	-
Development of the Port of Boston Loan Fund,						\$75,000 00
Harbor Compensation Fund,						200,000 00
Unexpended Nov. 30, 1917, to revert to the Development of the Port of Boston Loan Fund,						<hr/> \$275,000 00
						75,000 00
						<hr/> \$200,000 00
Dredging, Engineering,						
	1913.	1914.	1915.	1916.	1917.	Total.
	-	-	-	\$37,559 45	\$148,210 00	\$185,769 45
	-	-	-	1,198 30	5,362 98	6,561 28
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	-	-	-	\$38,757 75	\$153,572 98	\$192,330 73
Unexpended balance Nov. 30, 1917,						<hr/> \$7,669 27

EXPENDITURES FOR DEVELOPMENT AND IMPROVEMENT IN BOSTON HARBOR, 1870-1917 INCLUSIVE.

PAYMENTS FROM —	Boston Harbor.	Commonwealth Flats at East Boston.	Commonwealth Flats at South Boston.	Commonwealth Pier No. 5.	Dry Dock.	Hayward's Creek.	Mytic River.	Chelsea Creek.	Commercial Point, Dorchester Bay.	Commonwealth Pier No. 5, Operation and Maintenance.	Maintenance of Other Property of Commonwealth.
<i>1870-1911 inclusive.</i> All funds and appropriations (Harbor and Land Commissioner's Report, 1911, page 99): —											
Anchorage basin, . . . \$504,268 50											
Dredging, . . . 580,987 44											
Dredging, income, Harbor Compensation Fund. —	\$1,503,239 88	\$35,084 27	\$3,535,500 60	\$381,877 09	\$435 50	—	—	—	—	—	—
Northern Avenue, . . .	—	—	280,000 00	—	—	—	—	—	—	—	—
South Bay, . . .	57,341 21	—	—	—	—	—	—	—	—	—	—
Metropolitan docks, . . .	644 15	—	—	—	—	—	—	—	—	—	—
<i>1912-1918 inclusive.</i> Income, Harbor Compensation Fund, Development of the Port of Boston Loan Fund (chapter 748, Acts of 1911). —	44,797 48	—	—	—	—	—	\$58,946 39	—	—	—	—
Commonwealth Flats Improvement Fund: —	—	1,733,718 67	104,647 20	3,588,260 40	670,177 61	\$310 68	4,303 46	—	\$53,213 10	—	—
Account of Northern Avenue, . . .	—	—	44,233 65	—	—	—	—	—	—	—	—

EXPENDITURES FOR DEVELOPMENT AND IMPROVEMENT IN BOSTON HARBOR, 1870-1917 INCLUSIVE Continued.

PAYMENTS FROM	Boston Harbor.	Com- monwealth Plots at East Boston.	Com- monwealth Plots at South Boston.	Common- wealth Pier No. 8.	Dry Dock.	Hay wards Creek.	Mystic River.	Charles Creek.	Com- monwealth Dredge for Bay	Common- wealth Pier No. 8, Operation and Main- tenance.	Main- tenance of other property of Com- mon- wealth
Harbor Compensation Fund and De- velopment of the Port of Boston Loan Fund:—											
Mystic River dredging (chapter 283, General Acts of 1916).	9378 18						918,872 00				
Quincy Bay shore (chapter 323, Special Acts of 1917).											
Port of Boston Fund:—											
Operation and maintenance, Com- monwealth Pier No. 8.										918,044 80	90,461 00
Maintenance of Commonwealth's property.										14,871 25	
	91,007,840 14	22,102,649 71	64,006,704 46	48,986,271 25	91,092,177 07	317,756 80	826,804 80	918,844 00	103,218 10	9301,408 44	940,159 04

(Grand total, \$18,441,778 48.)

APPROPRIATIONS, CONTRIBUTIONS AND EXPENDITURES FOR IMPROVEMENT
OF SMALL HARBORS AND CHANNELS WITHIN BOSTON MAIN HAR-
BOR, UNDER THE DIRECTION OF THE COMMISSION ON WATERWAYS
AND PUBLIC LANDS, AND ITS PREDECESSORS, FROM 1893 TO 1917,
INCLUSIVE.

LOCALITY.	Character of Work.	Total Appropriation.	Contributions by Municipality or Others.	Total Expenditure.
Cottage Park Channel, Winthrop.	Dredging, . . .	\$9,525 92	-	\$9,504 58
Dorchester, easterly shore, Boston.	Dredging, . . .	70,363 66	-	70,171 31
Harbor View, Boston, . . .	Dredging, . . .	10,146 00	-	146 00
Hingham Harbor, . . .	Dredging, . . .	13,180 69	\$3,000 00	16,180 69
Houghs Neck Channel, Quincy,	Dredging, . . .	13,972 67	500 00	14,472 67
Houghs Neck, . . .	Sea wall, . . .	15,091 19	5,000 00	469 37
Island End River, Everett, .	Survey, . . .	264 10	-	264 10
Jeffries Point Channel, . . .	Dredging, . . .	11,000 00	-	1,000 00
Mystic River (near Lawrence & Wiggin's Wharf).	Dredging, . . .	5,927 70	-	5,927 70
Neponset River, . . .	Dredging, . . .	43,743 24	-	43,742 50
Orient Heights Channel, . . .	Dredging, . . .	11,298 75	-	10,943 27
Point Shirley, . . .	Dredging, . . .	1,150 00	-	1,150 00
Shirley Gut, Boston and Winthrop.	Dredging, . . .	1,906 20	-	1,906 20
South Boston, southerly shore,	Dredging, . . .	126,972 48	-	126,972 44
Stony Beach, Hull, . . .	Sea wall, . . .	11,607 90	-	11,335 07
Wessagussett Channel, . . .	Dredging, . . .	815 20	-	815 20
Weymouth Fore River, . . .	Dredging, . . .	46,838 34	-	31,913 85
Winthrop Harbor channels, .	Dredging, . . .	30,754 80	700 00	29,500 22
Wollaston Channel, . . .	Dredging, . . .	34,052 64	-	33,631 25
		\$458,611 48	\$9,200 00	\$410,046 42

CONTRIBUTIONS AND EXPENDITURES FOR RIVER AND HARBOR WORK
FROM DEC. 1, 1916, TO NOV. 30, 1917, UNDER CHAPTER 481, ACTS
OF 1909.

LOCATION.	Character of Work.	Contributions.	Expenditure.
Annisquam River,	Riprap inspection,	-	\$7 71
Bass River, Dennis and Yarmouth, .	Jetty,	-	55 31
Connecticut River, Chicopee, . . .	Wall,	-	7,879 07
Connecticut River,	Inspection,	-	103 63
Cotuit Harbor,	Dredging,	-	1,719 71
Deacons Pond Harbor, Falmouth, .	Dredging,	-	42 65
Duxbury Bay,	Dredging,	-	1,247 20
Ellisville Harbor,	Dredging,	-	8,174 00
Glades, North Scituate,	Survey,	-	51 63
Gloucester Harbor,	Dredging,	-	10,026 32
Gun Rock Point, Hull,	Breakwater,	\$10,000 00	38,796 33
Herring River, Harwich,	Bulkhead and jetties,	500 00	8 37
Houghs Neck, Quincy,	Sea wall,	-	91 19
Hyannisport,	Breakwater,	-	1,152 32
Ipswich River,	Dredging,	-	3,073 55
Lake Anthony,	Survey,	-	180 70
Lewis Bay, Barnstable,	Dredging,	-	4 00
Little Harbor, Marblehead,	Dredging,	2,500 00	635 65
Lynn Harbor and Saugus River, . .	Dredging,	-	22,618 01
Manchester Harbor,	Survey,	-	167 54
Menamsha Inlet,	Survey,	-	10 50
North River, Salem,	Survey,	-	22 22
Oak Bluffs,	Survey,	-	132 45
Orleans,	Survey,	-	98 18
Pamet River,	Survey,	-	49 74
Plymouth Harbor,	Dredging,	-	7,602 01
Popponneset Bay,	Dredging,	-	10,078 39
Provincetown Harbor,	Survey,	-	995 85
Rockport Harbor,	Removal of ledge,	-	840 82
Salt Pond River, Eastham,	Survey,	-	1 88
Sandwich Harbor,	Jetties and dredging,	-	10,207 93
Scituate,	Sea walls,	-	2,734 76
Scituate Harbor,	Dredging,	-	8,899 84
South Hadley,	Wall,	-	2,333 62

CONTRIBUTIONS, ETC. — *Concluded.*

LOCATION.	Character of Work.	Contributions.	Expenditure.
Taunton River-Massachusetts Bay Canal.	Survey,	-	\$8,963 17
Waquoit Bay,	Breakwater, wall and bulkhead.	-	10,629 88
Wareham River,	Dredging,	-	23,356 19
Warrens Cove, Plymouth,	Sea walls,	\$536 50	12,402 11
West Harwich,	Survey,	-	9 00
Winthrop Shore,	Sea wall,	-	1,073 75
Yarmouthport,	Survey,	-	13 84
General,	Unclassified,	-	217 79
		\$13,536 50	\$106,708 31

APPROPRIATIONS, CONTRIBUTIONS AND EXPENDITURES FROM 1893 TO 1917, INCLUSIVE, FOR RIVER AND HARBOR WORK, UNDER THE DIRECTION OF THE BOARD OF HARBOR AND LAND COMMISSIONERS TO AUGUST 3, 1916, AND THE COMMISSION ON WATERWAYS AND PUBLIC LANDS AUG. 3, 1916, TO NOV. 30, 1917, EXCEPTING BOSTON MAIN HARBOR.

LOCALITY.	Character of Work.	Total Appropriation.	Contribution by Municipality or Others.	Total Expenditure.
Acushnet River,	Inspection,	\$2 15	-	\$2 15
Allens Harbor, Harwich, . . .	Surveys,	302 00	-	302 00
Annisquam River, Gloucester, .	Dredging, removing ledges and riprap.	107,630 63	-	107,260 75
Apponagansett Harbor and River, Dartmouth.	Survey, dredging and stone breakwater.	56,159 59	-	55,786 05
Barnstable Harbor,	Survey and dredging,	13,747 18	\$1,500 00	14,900 75
Bas River, Beverly,	Dredging,	25,539 81	55,535 75	81,075 56
Bas River, Dennis and Yarmouth.	Jetties, dredging and survey.	70,538 22	2,500 00	71,553 22
Brant Rock, Marshfield, . . .	Sea wall,	965 84	-	965 84
Bucks Creek, Chatham, . . .	Jetties, survey and dredging.	13,513 35	1,000 00	14,342 03
Bussards Bay, Falmouth, . . .	Survey,	166 11	-	166 11
Cataumet Harbor and Squeteague Pond, Bourne and Falmouth.	Dredging,	26,468 29	7,350 00	33,674 38
Centerville River, Barnstable, .	Dredging,	6,103 22	1,500 00	7,603 22
Cohasset Harbor, Cohasset and Scituate.	Breakwater and dredging.	33,634 22	20,091 88	54,326 10
Concord River, Billerica, . . .	Removing bowlders, .	1,514 59	150 00	1,664 59
Connecticut River,	Investigation of navigation and surveys.	10,637 04	-	6,970 99
Connecticut River,	Improvement,	103 63	-	103 63
Agawam,	Protective work, . .	20,396 09	-	18,814 42
Chicopee,	Survey, wall and riprap.	25,149 02	640 00	25,789 02
Hadley,	Protective work, . .	89,068 08	500 00	86,365 37 ¹
Hatfield,	Dikes and riprap, . .	14,751 82	1,000 00	14,952 57
Holyoke,	Dredging and protective work.	18,815 78	415 00	4,230 78
Northampton,	Protective work, . .	1,525 80	-	1,524 20
South Hadley,	Wall,	6,406 36	1,000 00	7,379 58
West Springfield,	Protective work, . .	5,135 00	-	5,051 49 ²
Conservation of waters,	Investigation,	28,000 00	-	23,909 08
Cotuit Harbor, Barnstable, . .	Dredging and survey,	33,548 24	2,000 00	32,520 13
Cuttyhunk Harbor, Gosnold, . .	Jetties and dredging,	61,828 25	9,000 00	70,754 18
Deacons Pond Harbor, Falmouth.	Dredging, jetties and wall.	46,843 68	14,000 00	60,843 68
Duxbury Bay and Harbor, . . .	Dredging,	27,798 79	-	27,798 79

¹ From 1888, inclusive.² From 1891, inclusive.

APPROPRIATIONS, ETC. — *Continued.*

LOCALITY.	Character of Work.	Total Appropriation.	Contribution by Municipality or Others.	Total Expenditure.
East Bay, Osterville, . . .	Jetties, dredging and removing scows.	\$23,864 35	—	\$23,529 79
Edgartown Harbor,	Survey,	205 65	—	205 65
Ellisville Harbor,	Dredging,	8,174 00	—	8,174 00
Essex County beaches, . . .	Survey,	1,000 00	—	1,000 00
Essex River, Essex,	Dredging,	5,000 00	—	5,000 00 ¹
Fall River Harbor,	Improvement,	350,014 46	—	854 10
Falmouth Heights, Falmouth, .	Sea wall,	5,863 51	\$1,000 00	6,863 51
Glades, North Scituate, . . .	Survey,	51 63	—	51 63
Gloucester Harbor, Gloucester, .	Dredging and removing ledges.	33,332 09	—	33,332 09
Green Harbor, Marshfield, . .	Jetties, dredging and survey.	90,804 54	—	76,466 85
Gun Rock Point, Hull, . . .	Breakwater,	43,141 86	10,000 00	53,141 86
Harbor Cove, Gloucester, . .	Survey and dredging, .	15,670 07	—	15,670 07
Herring River, Harwich, . . .	Jetties and dredging, .	34,675 99	2,500 00	36,456 69
Herring River, Wellfleet, . .	Dikes and ditches, . .	11,832 74	10,000 00	21,800 73
Housatonic River, Sheffield, .	Survey,	2,011 29	—	2,011 29
Hull,	Sea wall and survey, .	25,238 32	9,000 00	34,120 38
Humarock Beach, Scituate, . .	Survey,	250 00	—	236 07
Hyannisport, Barnstable, . .	Survey and breakwater.	49,968 82	2,500 00	52,488 82
Improvement of rivers and harbors.	General expenses, . .	3,684 75	—	3,684 75
Ipswich River, Ipswich, . . .	Jetty, wall, riprap and dredging.	46,870 93	1,000 00	47,864 73
Lake Anthony, Oak Bluffs, . .	Jetties and dredging, .	47,804 17	2,000 00	46,595 13
Lake Quannapowitt, Wakefield, .	Investigation,	1,004 21	—	345 32
Lewis Bay, Barnstable, . . .	Survey and dredging, .	29,211 64	—	28,963 21
Little Harbor, Marblehead, . .	Dredging,	635 65	2,500 00	635 65
Little River, Gloucester, . . .	Survey,	862 93	—	862 93
Lobster Cove, Gloucester, . .	Dredging,	17,603 98	1,500 00	19,103 98
Lynn Harbor, anchorage basin, .	Survey and dredging, .	62,901 67	5,200 00	62,700 45
Lynn Harbor and Saugus River, .	Dredging and filling, .	82,571 12	35,000 00	117,571 12
Manchester Harbor,	Jetties and dredging, .	48,896 10	35,500 00	81,873 94
Menamsha Inlet, Chilmark and Gay Head.	Jetties, dredging and sea wall.	63,423 34	700 00	64,019 69
Merrimack River,	Investigation and survey.	669 26	—	569 26
Mill River, Gloucester, . . .	Survey and dredging, .	24,632 86	300 00	24,899 59
Mitchells River, Chatham, . .	Survey,	322 96	—	322 96
Nantucket Harbor,	Dredging,	42,058 63	1,000 00	42,779 78

¹ Expended by United States government.

APPROPRIATIONS, ETC. — *Continued.*

LOCALITY.	Character of Work.	Total Appropriation.	Contribution by Municipality or Others.	Total Expenditure.
New Bedford Harbor, . . .	Pier, shed and dredging.	\$370,372 40	-	\$332,488 11
Nobscusset Harbor, Dennis, .	Breakwater, dredging and riprap.	26,163 21	\$1,200 00	17,951 47
North River, Marshfield, . .	Surveys and removing rocks.	6,853 75	1,800 00	8,653 75
North River, Salem, . . .	Survey,	704 52	-	704 52
Oak Bluffs,	Removing rocks, . .	632 45	-	594 95
Onset Bay, Wareham, . . .	Survey and dredging,	14,067 89	1,000 00	15,067 89
Orleans,	Survey,	104 18	-	104 18
Pamet River, Truro, . . .	Survey,	1,464 72	200 00	1,464 72
Paskamansett River, Dartmouth.	Dredging and jetty, .	5,227 68	-	5,227 68
Penikese Island, Gosnold, .	Pile wharf and survey,	5,300 00	-	5,192 95
Plum Island River, Newbury and Newburyport.	Survey,	983 31	-	983 31
Plymouth Harbor,	Dredging,	172,870 60	71,794 55	218,162 88 ¹
Popponneset Bay,	Dredging,	15,463 03	-	15,463 03
Province Lands, Provincetown,	Reclamation, . . .	83,000 00	-	71,858 79
Provincetown Harbor, . . .	Survey,	1,203 26	-	1,203 26
Quansett Harbor, Orleans, .	Survey,	198 88	-	194 50
Quick's Hole, Gosnold, . . .	Survey,	500 00	-	-
Red Brook Harbor, Bourne, .	Removing pier, . . .	275 00	-	275 00
Revere,	Stone breakwater, .	60,407 09	-	60,397 93
Rock Harbor, Orleans, . . .	Dredging,	12,108 25	400 00	12,492 71
Rockport Harbor,	Dredging and removing rocks.	14,387 63	-	13,707 33
Salem Harbor,	Survey,	3,050 05	-	1,050 05
Salt Pond River, Eastham, . .	Survey,	210 11	-	210 11
Salters Point, Dartmouth, .	Breakwater,	13,509 59	1,500 00	15,009 59
Sandwich Harbor,	Dredging, riprap and jetties.	67,563 75	-	67,563 75
Saugus River, Lynn and Saugus.	Survey and dredging,	19,206 64	2,000 00	20,845 17
Scituate,	Sea walls and riprap,	53,181 06	235 00	52,311 19
Scituate Harbor,	Dredging,	65,743 76	8,300 00	74,043 76
Soorton Harbor, Sandwich, .	Jetty and dredging, .	19,426 39	500 00	17,774 34
Sesuit Harbor, Dennis, . . .	Jetty,	24,484 05	1,000 00	20,471 30
Sippican Harbor, Marion, . .	Survey,	7 17	-	7 17
Smith's Cove, Gloucester, . .	Survey and dredging,	5,163 07	-	5,163 02
South River, Salem, . . .	Dredging,	10,523 65	3,000 00	13,462 66

¹ \$57,000 expended under direction of United States government.

APPROPRIATIONS, ETC. — *Concluded.*

LOCALITY.	Character of Work.	Total Appropriation.	Contribution by Municipality or Others.	Total Expenditure.
South Watuppa Pond, Fall River.	Fenders and excavation.	\$203 42	—	\$203 42
Stage Harbor, Chatham, . . .	Dikes and survey, . . .	10,803 01	—	10,803 01
Taunton River,	Survey and investigation.	5,532 99	—	1,960 51
Taunton-Brockton Waterway, .	Investigation,	5,388 46	—	5,278 18
Taunton River-Boston Harbor Canal.	Survey,	10,000 00	—	9,932 75
Taunton River-Massachusetts Bay.	Survey,	9,516 04	—	9,516 04
Vineyard Haven,	Sea walls,	8,012 62	\$1,380 50	9,393 12
Vineyard Haven Harbor, Tisbury.	Breakwater and dredging.	45,089 48	1,000 00	45,518 25
Waquoit Bay, Falmouth, . . .	Survey, breakwater and bulkhead.	12,346 79	—	12,048 40
Wareham River,	Survey and dredging,	37,349 27	5,000 00	42,349 27
Warrens Cove, Plymouth, . . .	Sea wall,	12,448 97	9,713 98	22,162 95
Watch Hill, Chatham,	Survey and riprap, . . .	15,020 47	—	14,968 75
Wellfleet Harbor,	Survey and dredging,	16,867 22	1,500 00	17,600 29
West Bay, Barnstable,	Jetties and dredging,	45,460 82	—	45,423 45
West Falmouth Harbor, Falmouth.	Dredging,	25,655 31	—	24,386 18
West Harwich,	Survey,	9 00	—	9 00
Westfield River,	Survey,	5,000 00	—	146 96
Wild Harbor, Falmouth,	Jetty and dredging, . . .	15,671 59	5,000 00	15,614 72
Winthrop Shore,	Sea wall,	16,666 34	3,000 00	19,666 34
Witchmere Harbor, Harwich, . .	Jetties and dredging,	28,662 06	1,000 00	29,519 36
Woods Hole, Great Harbor, Falmouth.	Dredging,	5,468 86	1,500 00	6,968 86
Wrecks,	Removal from tide-water.	65,716 66	—	7,005 08
Yarmouthport Harbor,	Survey,	321 92	—	321 92
		\$3,392,136 74	\$360,506 66	\$3,165,629 56

FEDERAL APPROPRIATIONS AND EXPENDITURES.

Federal appropriations and expenditures for improvement of rivers and harbors in Massachusetts from the establishment of the government to the close of the fiscal year ending June 30, 1917, are shown in the following tables, furnished by the Chief of Engineers, U. S. A.:—

TABLE NO. 1—*Localities at Present under Improvement.*

[Compiled from the annual report of the Chief of Engineers, U. S. A., for the fiscal year ending June 30, 1917.]

LOCALITY.	Expenditures.	Appropriations.
Newburyport Harbor,	\$475,733 61	\$494,100 00
Merrimack River,	404,346 23	414,466 72 ¹
Sandy Bay, Cape Ann, harbor of refuge,	1,941,478 00	1,950,000 00
Gloucester Harbor,	538,183 00	542,083 00
Beverly Harbor,	49,019 04	49,125 00
Salem Harbor,	71,368 66	71,368 66 ²
Lynn Harbor,	470,264 50	476,837 00
Mystic River (upper portion), ³	304,533 84	312,050 00
Mystic River (below mouth of Island End River), ³		
Malden River,	70,736 00	149,950 00
Boston Harbor, ⁴	12,448,305 17	12,570,827 58
Dorchester Bay and Neponset River,	94,983 40	95,233 00
Weymouth Fore River,	186,580 63	490,750 00
Weymouth Back River,	26,500 00	27,000 00
Plymouth Harbor,	363,868 69	391,959 80
Provincetown Harbor,	348,062 72	362,162 97
Pollock Rip Shoals, Nantucket Sound,	354,675 82	400,000 00
Nantucket harbor of refuge,	574,348 60	586,473 50
New Bedford and Fairhaven harbors,	753,523 74	754,310 00
Taunton River,	201,222 33	210,189 18
Fall River Harbor,	380,911 49	380,911 49
Totals,	\$20,058,645 47	\$20,729,797 90

¹ Of original amount appropriated \$900 was carried to the surplus fund of the treasury from a previous project.

² Of original amount appropriated \$1,131.34 was carried to the surplus fund of the treasury.

³ Now consolidated as one improvement.

⁴ Including Chelsea Creek.

TABLE NO. 2—*Localities in which Work is not now in Progress.*

[Compiled from data furnished by the United States Treasury Department and the Chief of Engineers, United States Army.]

LOCALITY.	Expenditures.	Appropriations.
Bass River,	\$20,150 34	\$20,150 41
Buzzards Bay Harbor,	2,500 00	2,500 00
Canapitset Channel,	5,312 54	9,800 00
Chatham Harbor,	12,171 36	13,732 79
Cohasset Harbor,	10,000 00	10,000 00
Duxbury Harbor,	37,000 00	37,000 00
East Dennis Breakwater,	7 57	1,500 00
Edgartown Harbor,	25,000 00	25,000 00
Essex River,	30,000 00	30,000 00
Hingham Harbor,	38,316 58	39,000 00
Hyannis Harbor,	221,787 75	221,267 07
Ipswich River,	5,617 91	7,500 00
Kingston Harbor,	8,940 09	10,000 00
Little Harbor, Woods Hole,	18,000 00	18,000 00
Manchester Harbor,	23,985 57	24,300 00
Marblehead Harbor,	833 42	1,900 00
Marthas Vineyard Harbor,	7,000 00	7,000 00
Powow River,	50,940 72	51,000 00
Rockport Harbor,	91,229 25	91,232 57
Scituate Harbor,	104,590 98	104,680 00
Town River,	37,577 41	37,577 41
Vineyard Haven Harbor,	55,387 35	60,000 00
Wareham Harbor,	95,997 30	96,236 00
Wellfleet Harbor,	11,365 57	16,000 00
Westport Harbor and River,	3,000 00	3,000 00
Winthrop Harbor,	9,000 00	9,000 00
Woods Hole Channel,	343,599 92	344,000 00
Totals,	\$1,269,311 63	\$1,291,376 25

RECAPITULATION.	Expenditures.	Appropriations.
Total of Table No. 1,	\$20,058,645 47	\$20,729,797 90
Total of Table No. 2,	1,241,632 38	1,243,666 27
Grand totals,	\$21,300,277 85	\$21,973,464 17

EXPENDITURES ON BOSTON HARBOR AND ITS TRIBUTARIES TO JUNE 30, 1917.

[The tributaries given are those now under improvement, and do not include tributaries heretofore improved.]

LOCALITY.	Expenditures.	Appropriations.
Boston Harbor proper, ¹	\$12,448,305 17	\$12,570,627 58
Mystic River (below mouth of Island End River), ²	304,533 84	312,050 00
Mystic River (upper portion), ²		
Malden River,	70,736 00	149,950 00
Totals,	\$12,823,575 01	\$13,032,627 58

¹ Including Chelsea Creek.

² Now one improvement.

BUSINESS TRANSACTED AT COMMONWEALTH PIER No. 5,
SOUTH BOSTON, DURING THE FISCAL YEAR ENDING
NOV. 30, 1917.

The superintendent of terminals in his report to the Commission as to the business transacted at this terminal during the fiscal year ending Nov. 30, 1917, states that 82 ships, of a gross tonnage of 417,517 tons, arrived from various parts. The income from all sources for the year is \$121,134.56, an increase of about 128 per cent. over the preceding year.

Arrivals during the year: —

	Vessels.
From Montevideo and Buenos Aires,	38
From South African ports,	17
From Mediterranean ports,	5
From China and Manila,	4
From Calcutta,	4
From Chili,	3
From Egypt,	2
From Liverpool,	1
From Spain,	1
From Newfoundland,	1
From Detroit, Quincy, etc.,	6
	<hr/>
	82

Cargo receipts at the pier during the year: —

Dry hides,	409,582
Bales wool and mohair,	249,818
Green slated hides,	107,824
Bales cotton,	32,752
Chests tea,	17,849
Bales hemp,	12,513
Bales gunny cloth,	10,286
Bags casein,	10,165
Bales rattan,	9,192
Rolls paper,	8,353
Bags merchandise,	6,665
Bags beans,	6,663
Tons nitrate and salt,	6,355
Cases cheese,	5,678
Casks pelts,	5,076

Bags extract,	5,000
Cases rubber,	3,207
Casks tallow,	3,102
Bales wood pulp,	2,998
Bales skins,	2,734
Bags horns,	2,298
Bags asbestos,	1,163
Cases wax,	1,104
Cases cocoa meats,	697
Cases indigo, etc.,	149

COMPARATIVE TABULAR STATEMENT AS TO INCOME.

	12 Ships, May 31, 1913, to Nov. 30, 1914.	68 Ships, 1913-14.	65 Ships, 1914-15.	109 Ships, 1915-16.	82 Ships, 1916-17.
Railroad cars loaded,	\$2,310 60	\$5,122 68	\$4,686 50	\$8,866 39	\$7,532 38
Railroad cars unloaded,	2,483 00	4,090 34	630 69	656 03	623 70
Wharfage in,	2,471 13	9,870 11	10,046 34	16,104 01	15,376 02
Wharfage out,	508 30	2,258 42	421 05	414 48	362 60
Passengers in and out,	774 07	1,737 94	2,279 20	2,513 19	1,166 45
Ticket office,	774 91	469 32	314 99	436 17	146 77
Electric lights,	227 25	514 65	272 05	398 14	6,959 13
Electric winches,	-	-	502 13	817 71	1,791 13
Electric elevators,	-	-	712 63	1 50	
Water,	338 19	1,573 57	1,786 94	1,310 43	3,882 38
Wharf storage,	1,262 41	907 33	6,506 06	3,724 85	3,952 77
Old salt sold,	-	-	325 66	422 04	150 00
Coal and old material sold,	-	-	-	24 00	3,450 50
Auction room and gangway,	-	-	95 00	65 00	-
Grain elevators,	408 30	-	-	-	-
Rent of space,	-	-	11 40	8,924 38	60,967 82
Dockage,	-	10,110 00	32,815 00	8,193 75	13,025 25
Miscellaneous,	40 10	196 34	476 22	297 48	1,852 58
	\$11,598 26	\$36,850 70	\$61,881 86	\$53,169 55	\$121,239 48

TONNAGE.

	May 31, 1913, to Nov. 30, 1913 (Tons).	1913-14 (Tons).	1914-15 (Tons).	1915-16 (Tons.)	1916-17 (Tons).
Railroad cars loaded, . . .	23,106	51,227	46,864	88,664	75,324
Railroad cars unloaded, . . .	24,830	40,903	7,107	6,560	6,237
By teams, loaded, . . .	8,237	33,060	31,420	53,680	51,253
By teams, unloaded, . . .	1,695	7,540	3,588	1,382	1,210
Overside lighters loaded, . . .	—	—	—	13,000	3,175
	57,868	132,730	88,979	163,286	137,199

PASSENGERS.

	1913 (6 Months).	1913-14.	1914-15.	1915-16.	1916-17.
In and out,	12,385	27,806	19,734	16,239	5,550

CONTRACTS MADE BY THE BOARD OF HARBOR AND LAND

Contract No.	WORK.	Contractor.	Date.
185	Ipswich River, Ipswich, concrete wall and timber bulkhead.	Rendle & Stoddard, . . .	June 30, 1914
205	New Bedford, pier and steel shed, .	W. H. Ellis & Son Company, .	Jan. 5, 1915
244	Nobecusset Harbor, Dennis, dredging channel and basin.	Maryland Dredging and Contracting Company.	Apr. 11, 1916
245	Barnstable Harbor, dredging channel and basin.	Gerrish Dredging Company, .	Apr. 11, 1916
246	Wareham River, dredging channel, .	Charles M. Cole, . . .	June 28, 1916
249	Warrens Cove, Plymouth, concrete sea wall.	Cecil M. Leach, . . .	June 15, 1916
256	Plymouth Harbor, dredging channel.	Boston Dredging Company, .	June 29, 1916

CONTRACTS AWARDED BY THE DIRECTORS OF THE PORT OF BOSTON

Contract No.	WORK.	Contractor.	Date.
25	Dry dock,	Holbrook, Cabot & Rollins Corporation.	June 22, 1914
49	Bulkhead along Northern Avenue Extension, South Boston.	W. H. Ellis & Son Company, .	Apr. 17, 1916
50	Dredging in Mystic River off Mystic Wharf.	Maryland Dredging and Contracting Company.	Mar. 8, 1916
51	Reclamation of flats at East Boston,	Atlantic, Gulf & Pacific Company.	Mar. 14, 1916
52	Dredging in Mystic River, . . .	Maryland Dredging and Contracting Company.	June 27, 1916

COMMISSIONERS AND PENDING DURING THE YEAR 1917.

Condition of Work.	Contract Prices.	Amount paid during Year ending Nov. 30, 1917.	Total paid to Nov. 30, 1917.	Estimated Amount of Contract.
Suspended,	Lump sum,	-	\$1,382 78	\$2,324 00
Completed Sept. 4, 1917.	Unit prices,	\$37,614 84	296,599 64	315,697 25
In progress,	Dredging, 27.53 cents per cubic yard, measured in scows. Excavating bowlders, \$9.50 per cubic yard. Dredging and disposing of dredged material on land and flats, 27.53 cents per cubic yard, measured <i>in situ</i> .	72 31	72 31	9,300 00
Completed July 21, 1917.	Dredging, 16.3 cents per cubic yard, measured <i>in situ</i> . Excavating bowlders, \$6 for each cubic yard.	6,788 95	13,855 00	16,300 00
Completed June 26, 1917.	Dredging, 29.49 cents per cubic yard, measured in scows. Excavating bowlders, \$9.50 for each cubic yard.	21,809 70	38,676 72	38,676 72
Completed Aug. 1, 1917.	\$7.93 per cubic yard of concrete, measured in place in completed work. For piles in place, 45 cents per linear foot.	10,747 15	12,924 33	15,205 10
In progress,	For dredging, 24.9 cents per cubic yard, measured in scows. For excavating bowlders, \$9.50 per cubic yard.	5,614 43	7,934 75	9,375 34

AND IN FORCE DURING THE FISCAL YEAR ENDING NOV. 30, 1917.

Condition of Work.	Contract Prices.	Amount paid during Year ending Nov. 30, 1917.	Total paid to Nov. 30, 1917.	Estimated Amount of Contract.
In progress,	Unit prices,	\$383,248 73	\$482,894 49	\$1,865,157 25
Completed Jan. 23, 1917.	Unit prices,	9,128 85	24,622 90	25,085 00
Completed Mar. 24, 1917.	11.85 cents per cubic yard, . . .	7,120 85	47,457 59	53,325 00
In progress,	15.47 cents per cubic yard, . . .	325,343 25	520,731 77	706,979 00 ¹
Completed Aug. 13, 1917.	12.95 cents per cubic yard, . . .	148,210 00	185,769 45	270,000 00

¹ Includes extension of the original contract.

CONTRACTS MADE BY THE COMMISSION ON WATERWAYS

Contract No.	WORK.	Contractor.	Date.
2	Popponneset Bay, dredging channel.	Bay State Dredging and Contracting Company.	Aug. 2, 1916
4	Waquoit Bay, breakwater and wall.	John R. Burke, . . .	Aug. 2, 1916
5	Chicopee, Connecticut River, retaining wall and riprap.	Dennis F. Crowley, . . .	Aug. 18, 1916
6	Saugus River, Lynn, dredging channel.	Bay State Dredging and Contracting Company.	Mar. 26, 1917
9	Extension of contract No. 51 (Directors of the Port of Boston) for dredging and filling at East Boston.	Atlantic, Gulf & Pacific Company.	Oct. 6, 1916
10	Furnishing and erecting ladders and steps at Commonwealth Pier No. 5.	W. A. Snow Iron Works Inc., .	Nov. 6, 1916
11	Commonwealth Pier No. 5, cast-iron downspouts.	Hanscom Construction Company.	Jan. 11, 1917
12	Commonwealth Pier No. 5, watchman's clock system.	E. Howard Clock Company, .	Jan. 9, 1917
13	Winthrop, filling back of retaining wall.	Owen Flannery, . . .	Dec. 26, 1916
14	New Bedford State Pier, paving, .	Lafrance & Roesbeck, . .	June 7, 1917
15	Dry dock, pumping plant, . . .	Worthington Pump and Machinery Corporation.	July 30, 1917
15A	Dry dock, transformers, . . .	General Electric Company, .	June 26, 1917
17	Gun Rock Point, Hull, breakwater extension.	Rockport Granite Company, .	June 19, 1917
18	Gloucester Harbor, dredging, . .	Gerrish Dredging Company, .	June 19, 1917
19	Bass River, Dennis and Yarmouth, repairing easterly jetty.	John R. Burke, . . .	Sept. 10, 1917
20	Cotuit Harbor, dredging channel, .	John R. Burke, . . .	June 26, 1917
21	Warrens Cove, Plymouth, concrete sea wall.	James M. Downey, . . .	May 31, 1917
22	First Cliff, Scituate, placing riprap,	Henry T. Cole, . . .	July 24, 1917
24	Rockport Harbor, dredging shoal, .	Thomas Fitzgibbon, . . .	June 19, 1917

AND PUBLIC LANDS AND PENDING DURING THE YEAR 1917.

Condition of Work.	Contract Prices.	Amount paid during Year ending Nov. 30, 1917.	Total paid to Nov. 30, 1917.	Estimated Amount of Contract.
Completed Dec. 8, 1916.	Dredging, 46.7 cents per cubic yard, measured in scows. Excavating bowlders, \$12 per cubic yard.	\$9,900'05	\$14,470 93	\$14,470 93
In progress,	For stone in place in breakwater, \$2.95 per ton. For stone in place in wall, \$3.95. For timber bulkhead, \$4.90 per linear foot.	10,219 16	10,219 16	15,000 00
Completed Dec. 26, 1916.	\$10.30 per cubic yard of concrete in place; \$3 per ton of 2,000 pounds for stone in place.	7,698 17	8,696 94	8,696 94
Completed Aug. 10, 1917.	Dredging, 59 cents per cubic yard, measured in scows. Excavating bowlders, \$12 per cubic yard.	21,419 27	21,419 27	21,419 27
In progress,	15.47 cents per cubic yard,	-1	-1	-1
Completed Feb. 26, 1917.	Lump sum,	1,315 00	1,315 00	1,315 00
Completed Sept. 13, 1917.	Lump sums,	11,598 98	11,598 98	11,500 00
Completed Apr. 23, 1917.	Lump sum of \$2,145,	2,235 00	2,235 00	2,235 00
Completed Oct. 23, 1917.	50 cents per cubic yard of material in place.	1,000 87	1,000 87	1,326 00
Completed Aug. 14, 1917.	\$8.75 per cubic yard of concrete, measured in place.	4,021 50	4,021 50	4,021 50
In progress,	Lump sum of \$192,979,	-	-	192,979 00
In progress	Lump sum of \$14,942,	-	-	14,942 00
Completed Nov. 10, 1917.	\$1.87 per ton of stone furnished and placed.	27,887 78	27,887 78	32,809 15
Completed Sept. 5, 1917.	For dredging, 34 cents per cubic yard, measured in scows. Excavating bowlders, \$10 per cubic yard.	6,028 88	6,028 88	6,028 88
In progress,	Lump sum of \$1,560,	1,259 70	1,259 70	1,560 00
In progress,	Dredging, 46.9 cents per cubic yard, measured in scows. Excavating bowlders, \$10 per cubic yard.	1,090 70	1,090 70	25,000 00
Completed Aug. 13, 1917.	\$9.25 per cubic yard of concrete, measured in place.	975 88	975 88	975 88
Completed Sept. 26, 1917.	\$3.50 per ton for furnishing and placing stone.	1,585 50	1,585 50	1,585 50
Completed Sept. 15, 1917.	Lump sum of \$800,	800 00	800 00	800 00

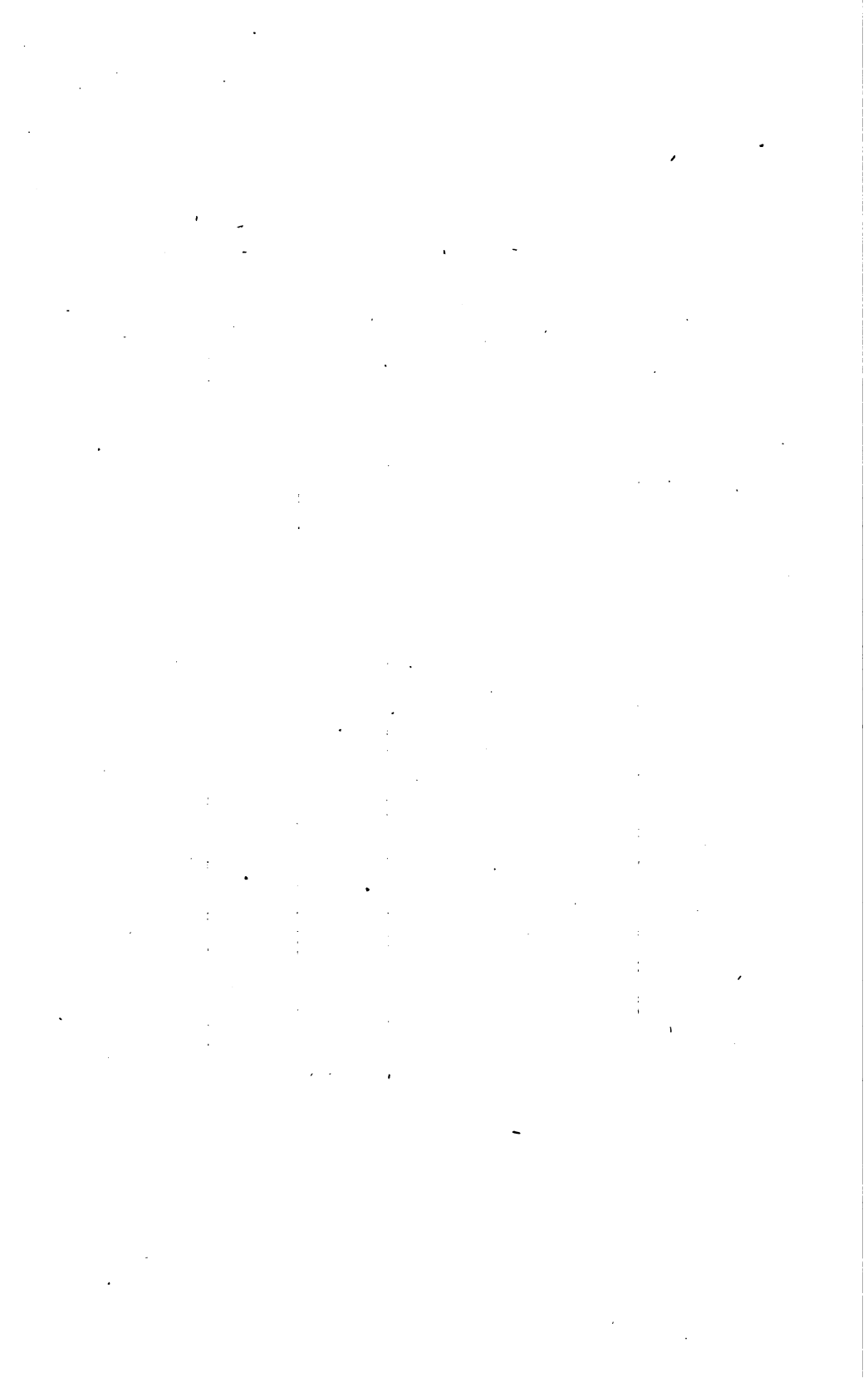
¹ See Contract No. 51.

CONTRACTS MADE BY THE COMMISSION ON WATERWAYS

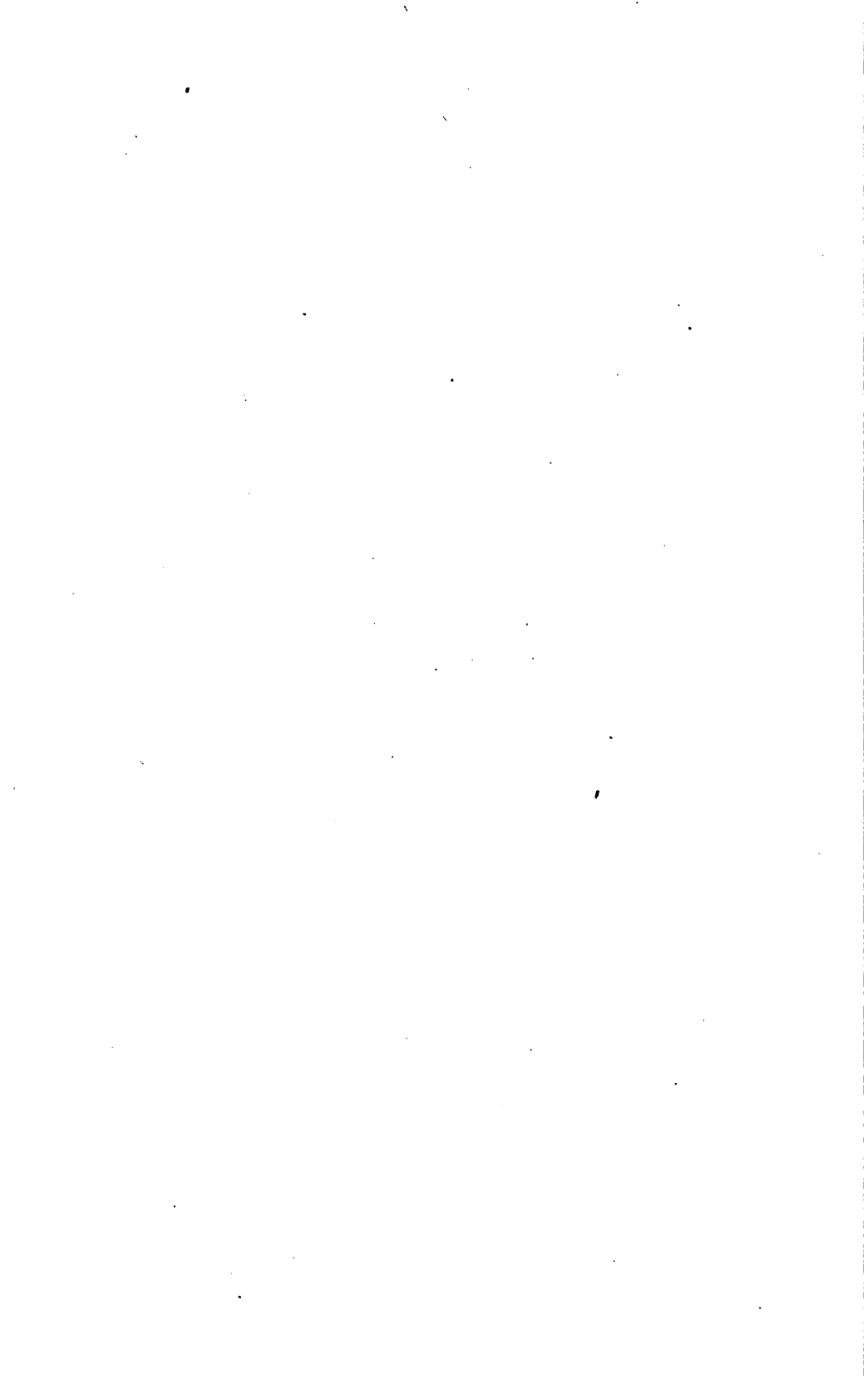
Contract No.	Work.	Contractor.	Date.
25	Chelsea Creek, dredging channel, .	Atlantic, Gulf Pacific Company.	Aug. 9, 1917
26	Dry dock, sluice gates, . . .	Coffin Valve Company, . . .	Aug. 21, 1917
27	Scituate Harbor, dredging channel and basin.	Boston Dredging Company, .	Aug. 9, 1917
28	Sandwich Harbor, dredging channel and extending jetty.	Bay State Dredging and Contracting Company.	Sept. 18, 1917
29	Ellisville Harbor, Plymouth, dredging channel and basin and riprapping banks.	Dennis F. Crowley, . . .	Aug. 21, 1917
30	Herring River, Harwich, dredging channel.	John R. Burke, . . .	Aug. 21, 1917
31	Houghs Neck, Quincy, sea wall, .	Dennis F. Crowley, . . .	Sept. 18, 1917
35	South Hadley, Connecticut River, addition to concrete wall.	Daniel O'Connell's Sons, . .	Sept. 10, 1917
36	Little Harbor, Marblehead, dredging basin.	George T. Rendle Company, .	Sept. 18, 1917
37	Westfield River, stone jetties, .	Woronoco Construction Company.	Oct. 16, 1917
38	New Bedford State Pier, installing fire sprinklers.	General Fire Extinguisher Company of Massachusetts.	Oct. 2, 1917
39	Nobacuset Harbor, Dennis, riprap wall.	Jehiel R. Crosby and Joyce Taylor.	Oct. 4, 1917
40	Deacons Pond Harbor, Falmouth, concrete sea wall.	William W. Phinney, . . .	Oct. 9, 1917
41	Tracks on viaduct at South Boston,	C. W. Dolloff & Co., . . .	Oct. 25, 1917
42	Installing electric poles and wires for track on viaduct.	Fred T. Ley & Co., Incorporated.	Oct. 25, 1917
43	Freight shed at D Street, South Boston.	Gerry & Northup Company, .	Nov. 22, 1917

PUBLIC LANDS AND PENDING DURING THE YEAR 1917 — *Concluded.*

Condition of Work.	Contract Prices.	Amount paid during Year ending Nov. 30, 1917.	Total paid to Nov. 30, 1917.	Estimated Amount of Contract.
In progress,	15.47 cents per cubic yard for material dredged and deposited on shores; 25.5 cents per cubic yard, measured in scows, for material dredged and placed in scows for transportation.	\$18,126 26	\$18,126 26	\$60,000 00
In progress,	Lump sum of \$21,500,	720 00	720 00	21,500 00
Completed Oct. 8, 1917.	Dredging, 36.5 cents per cubic yard, measured in scows. Excavating bowlders, \$12.50 per cubic yard.	8,425 85	8,425 85	8,425 85
In progress,	Dredging, 55 cents per cubic yard, measured in scows; \$3.50 per ton for furnishing and placing stone in jetty.	9,444 90	9,444 90	14,207 65
In progress,	Dredging, 78 cents per cubic yard, measured <i>in situ</i> ; \$3.65 per ton for furnishing and placing stone.	7,673 37	7,673 37	12,645 00
In progress,	Lump sum of \$5,000,	1,062 50	1,062 50	5,500 00
In progress,	Unit prices,	-	-	14,576 50
Completed Oct. 1, 1917.	\$13 per cubic yard of concrete, measured in place.	2,239 90	2,239 90	2,239 90
In progress,	Dredging, 49 cents per cubic yard, measured in scows. Excavating bowlders, \$14 per cubic yard.	-	-	9,800 00
In progress,	\$3.98 per ton for stone furnished and placed.	-	-	3,980 00
In progress,	Lump sum of \$7,000. Additional sprinklers, with piping and accessories, \$4.50 each.	-	-	7,000 00
Completed Nov. 17, 1917.	\$3.25 per ton for stone furnished and placed.	1,215 50	1,215 50	2,453 75
Completed Nov. 22, 1917.	Lump sum of \$800,	800 00	800 00	800 00
In progress,	Unit prices,	1,891 48	1,891 48	19,000 00
In progress,	Unit prices,	-	-	1,789 00
In progress,	Lump sum of \$8,976,	-	-	8,976 00



INDEX.



INDEX.

COMMISSIONERS' REPORT.

	PAGE
Apponagansett Harbor,	36
Appropriations, Contributions and Expenditures for River and Harbor Work,	112
Barnstable Harbor,	37
Bass River, Dennis and Yarmouth,	37
Boston Harbor,	19
Anchorage Basin, — Repair of Dolphins,	30
Appropriations, Contributions and Expenditures for Improvement of Small Harbors and Channels within Boston Main Harbor,	109
Boston Harbor and Minor Channels,	6
Boston Harbor Improvement,	9
Boston Terminals,	14
Chelsea Creek,	31, 100
Commonwealth Flats at East Boston,	25, 102
East Boston Land,	8
Commonwealth Flats at South Boston,	19, 103
Commonwealth Pier No. 5,	12, 19, 119
Dry Dock,	7, 20, 102
Floating Grain Elevators,	25
Freight Shed,	105
Installation of Street Railway Tracks across the Viaduct,	23
Northern Avenue Bulkhead,	25
Streets and Industrial Tracks at South Boston,	23
Commonwealth's Terminal on Weymouth Fore River and Hayward's Creek,	26, 101
Development Port of Boston Loan Fund,	101
Expenditures for Development and Improvement in Boston Harbor, 1870-1917,	106
Further Improvement and Development of the Port of Boston,	33
Harbor Improvement Loan Fund,	101
Hayward's Creek,	10, 101
Income Harbor Compensation Fund,	93
Mystic River,	31, 103
Port Funds,	93
Port of Boston Fund,	95
Port of Boston Fund, Receipts, 1917,	100
Quincy Bay Shore,	105
Sea Wall at Hough's Neck, Quincy,	32, 105
South Boston Land,	11
Cape Cod Canal,	58
Chicopee River,	38
Connecticut River,	38
Chicopee,	38
South Hadley,	38
Tributaries to Connecticut River,	38

	PAGE
Conservation of Waterways,	5
Conserving and equalizing the Flow of Water in Rivers and Streams,	87
Contracts made and pending during 1917,	122
Contributions and expenditures for River and Harbor Work,	110
Cotuit Harbor,	39
Deacons Pond Harbor,	39
Deerfield River,	38
Details of Work,	18
Ellisville Harbor, Plymouth,	40
Fall River Harbor,	41
Falmouth Heights, Falmouth,	41
Federal Appropriations and Expenditures,	116
Fish Weirs,	87
Gloucester Harbor,	42
Great Ponds,	55
Gun Rock Point, Hull,	42
Harbor and Land Commissioners Tidewater Fund,	88
Harbor Compensation Fund,	100
Harbor Improvement Loan Fund,	101
Herring River, Harwich,	43
Licenses granted during the Year,	63
Little Harbor, Marblehead,	43
Lynn Harbor and Saugus River,	44
Massachusetts Atlas Sheets and Town Boundary Atlases,	57
Millers River,	38
Miscellaneous Permits granted during the Year,	71
Necessity for creating Coal Reserves at Tidewater Terminals,	16
New Bedford and Fairhaven Harbors, — State Pier,	6, 44
New Leases,	11
Nobscusset Harbor, Dennis,	47
Plymouth Harbor,	48
Popponesset Bay,	48
Province Lands,	56
Re-establishment of Certain Triangulation Points,	88
Rivers, Harbors, Tidewaters and Foreshores exclusive of Boston Harbor,	35
Rockport Harbor,	49
Sandwich Harbor,	49
Scituate Harbor,	50
Scituate Sea Wall, — First Cliff,	50
Surveys for Inland Waterways,	5
Taunton River,	50
Waquoit Bay,	52
Wareham River,	52
Warrens Cove, Plymouth,	53
Westfield River,	38, 53
Winthrop Sea Wall,	54

